

Assessment of Management Effectiveness for the 2009 Great Barrier Reef Outlook Report

**Prepared by
Marc Hockings and Brian Gilligan
for the
Great Barrier Reef Marine Park Authority**

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Assessment of Management Effectiveness for the 2009 Great Barrier Reef Outlook Report
p.2, Table 2. Summary of Assessment Results - *whole table replaced*

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Executive Summary

This assessment has examined the range of component activities identified as key elements of the existing measures to protect and manage the Great Barrier Reef. These range in scale from localised issues that affect only a small proportion of the total area (e.g. Defence) to others which have implications across all or most region (e.g. climate change, recreation, coastal development). No attempt has been made to weight these components, and performance assessments need to be interpreted in the context of these scale differences.

The varying scale and complexity of issues are outlined in Table 1.

Table 1. Scale and complexity of issues addressed in Management Effectiveness assessment.

Issue	Scale	Complexity		
		Social	Biophysical	Jurisdictional
Biodiversity	Region-wide	minor	major	moderate
Climate Change	Region-wide	major	major	major
Coastal Development	Coastal catchment areas and mainly inshore waters	major	major	major
Defence	Limited in area and duration	minor	minor	minor
Fishing	Region-wide but variable in intensity	major	major	moderate
Heritage	Region-wide	moderate	minor	moderate
Marine Tourism	Region-wide but variable in intensity	major	moderate	moderate
Ports & Shipping	Concentrated around ports and shipping lanes	moderate	moderate	moderate
Recreation (not including fishing)	Region-wide but variable in intensity	major	moderate	moderate
Scientific Research	Region-wide but limited in intensity	minor	moderate	minor
Traditional Use	Region-wide but variable in intensity	major	moderate	moderate
Water Quality	Great Barrier Reef catchment and mainly inshore waters	major	major	major

The overall assessment results are summarised in Table 2. This report makes no recommendations for improvements as this was outside the scope of the assessment but through the text does seek to provide clear explanations for the grading judgements made. This emphasis in the text may, in some sections, appear to place undue focus on relatively minor negative attributes rather than on an overall positive result. However, the intent is simply to maximise the usefulness of the report for those considering management responses to the issues raised.

Management effectiveness challenges are evident for those issues which are broad in scale and complex socially, biophysically and jurisdictionally (i.e. climate change, coastal development, water quality, fishing). The corollary is that effectiveness is strongest on issues limited in scale or intensity and presenting only minor or moderate complexity (i.e. Defence and Scientific research). Modest effectiveness in management process and outputs for traditional use may only be sustained if shortcomings in management inputs are addressed.

Table 2. Summary of assessment results.

Issue	Scale	Complexity			Effectiveness of existing measures to protect and manage				Summary		
		Social	Bio-physical	Jurisdictional	Context	Planning	Inputs	Processes		Outputs	Outcomes
Coastal development	Coastal areas and mainly inshore waters	major	major	major							A lack of integrated planning, resources and enforcement in managing coastal development is compromising protection of the Great Barrier Reef.
Water quality	Great Barrier Reef catchment and mainly inshore waters	major	major	major							Substantial resources are being provided to improve the water quality of the Great Barrier Reef, but progress is slow and patchy.
Fishing	Region-wide but variable in intensity	major	major	moderate							A lack of information and coordination plus variable uptake of best practice management is limiting the effectiveness of fisheries management.
Climate change	Region-wide	major	major	major							The broad threats to the Great Barrier Reef from climate change are understood and management emphasis is on adaptation and improving resilience to change.
Traditional use of marine resources	Region-wide but variable in intensity	major	moderate	moderate							Improvements are being made in the management of traditional use, including joint resource use agreements, but progress is slow.
Recreation (not including fishing)	Region-wide but variable in intensity	major	moderate	major							Management of recreation is generally indirect and coordination is lacking.
Biodiversity protection	Region-wide	minor	major	moderate							Many biodiversity protection measures, for example zoning plans, are making a difference, but there is no overarching framework to guide and coordinate management actions.
Heritage	Region-wide	moderate	minor	moderate							There is strong awareness of heritage values and protection arrangements are in place.
Ports and shipping	Concentrated around ports and shipping lanes	moderate	moderate	moderate							Comprehensive management and coordination has minimised shipping incidents. Ports management appears to have protected natural values, but there is a lack of overall strategic planning.
Commercial marine tourism	Region-wide but variable in intensity	major	moderate	moderate							Coordinated and professional management of tourism ensures a sustainable industry that contributes to Marine Park management.
Defence	Limited in area and duration	minor	minor	minor							Thorough assessment, coordination and planning mean that defence activities are well managed in the Great Barrier Reef.
Scientific research	Region-wide but limited in intensity	minor	moderate	minor							Research activities are environmentally sustainable and are enhancing community understanding.

Framework for the report

Management effectiveness evaluation is defined as the assessment of how well protected areas are being managed – primarily the extent to which they are protecting values and achieving goals and objectives. The report has used a management effectiveness evaluation framework that has been widely applied around the world. This framework focuses on six management elements (context, planning, inputs, processes, outputs, outcomes) and the links between them, to provide a comprehensive picture of management effectiveness for the ecosystem within the Great Barrier Reef Region. The assessment addresses the overall management of 12 activities/issues that occur within the Great Barrier Reef rather than assessing each individual agency's management of any particular issue or activity. It was also decided to consider some management activities extending outside the Great Barrier Reef Region.

Biodiversity conservation is the primary objective for much of the management action taken on the Great Barrier Reef through an array of programs and mechanisms rather than a single clearly focused program. There is no comprehensive documentation of risks to biodiversity values and mitigation measures applied in the Great Barrier Reef Region. The limited identification of specific biodiversity goals and objectives in plans limits the capacity to track outputs and outcomes. Based on the available information most species are maintaining healthy populations; a small number are known to be suffering serious declines; most populations of threatened species have stabilised but are recovering weakly. However this conclusion must be tempered by the lack of reliable data on population trends for many species and changes to the extent and condition of many habitats.

Local and regional management actions are delivering positive results in terms of the condition of the Great Barrier Reef. However global influences such as **climate change** are likely to overshadow the effects of local efforts. Uncertainties about the precise nature and pace of change have led the management agencies to focus on enhancing capacity to adapt to change in both ecological and social systems. Climate change plans and strategies are in place. While objectives are generally clearly identified, the challenge remains to translate them into specific policies and measurable actions for on-ground management which can be consistently applied across jurisdictions.

The limited development of integrated regional and local plans for the **coastal catchments** indicates a shortcoming of the planning system and a major vulnerability for the Great Barrier Reef. The population of the Great Barrier Reef catchment is increasing rapidly without full consideration of implications for the sensitive environments downstream. The continuing degradation of coastal environments along much of the coast gives little confidence that the values of the Great Barrier Reef are being protected. Compliance monitoring and enforcement is limited, further constraining prospects for addressing the cumulative impacts of coastal development decisions. The Queensland State Coastal Plan does not reflect the international significance of the Great Barrier Reef and only three of nine regional coastal plans have been completed. The state plan and the regional plans which are in place generally recognise threats and risks relevant to the Great Barrier Reef but the risks such as loss of coastal wetlands and modification of floodplains are often not directly addressed or mitigated.

The limited area of operations and high level of performance in minimising the environmental impacts results in **defence** activities posing minimal threat to Great Barrier Reef values.

Protection of Great Barrier Reef values relevant to **fishing** is variable and progress towards application of best practice management across the whole fisheries spectrum is being made but not rapidly. Managers generally have a good understanding of commercial retained catch information, but lack significant information on the biology and stock distributions of some species, habitat values and broader cost/benefit analyses of the industry. The understanding of recreational fishing and the take by charter and Indigenous fishers is much more limited. Cumulative impacts on ecosystem values are poorly understood and hence not effectively addressed by management. Physical habitats are generally well protected by zoning plans but management systems are not adaptive enough to deal with the pace of change and compounding issues arising from climate change and water quality impacts.

Managers are well aware that they are looking after the largest World Heritage Area but more focused attention to **cultural and historic heritage** is needed if the full range of heritage values of the Great Barrier Reef is to be protected.

High levels of visitor satisfaction are documented as are significant economic benefits to local communities from **marine-based tourism**. Effective tourism planning and management systems are in place. The environmental sustainability of marine based tourism activities will depend on effectively addressing the implications of latent capacity in the permit system and improved documentation of the levels of specific activities undertaken in each location over time.

Shipping management is reducing the risk of incidents and environmental management practices in many **ports** appear to be limiting impacts of port activities. However there is evidence of demand for expansion of port capacity. This demand, coupled with the limited strategic planning to address the growth and long term impacts of ports and shipping activities on the Great Barrier Reef, may lead to impacts on environmental sustainability in the future.

Threats to Great Barrier Reef values from **recreational use** are generally being reduced through zoning plans, plans of management, policies and guidelines such as Responsible Reef Practices and day-to-day field operations. Concerns remain about issues such as the impacts of vessel anchorage and sewage discharges in sensitive areas.

Management of **research** in the Great Barrier Reef is targeted to reducing risks and threats to Great Barrier Reef values. The need to more effectively manage research through implementation of the Permits, Compliance and Management System (PCaMS) is recognised. Research activities appear to be environmentally sustainable and through the maintenance of effective partnerships with research institutions, are demonstrably enhancing community understanding and enjoyment of the Great Barrier Reef.

It is impossible for non-Indigenous evaluators working to a tight reporting timeframe, and hence without capacity to consult widely with Indigenous communities, to do other than rely on publicly available documents and consultation with Indigenous liaison staff of managing agencies in order to assess, in very broad terms, the effectiveness of efforts to manage traditional use of marine resources by Indigenous people. Progress on engagement with Traditional Owners has been slow, but consultation processes are helping to reduce some of the major risks to Great Barrier Reef values. While there is

very limited information on the take of dugong and turtles, the precautionary principle is applied in Traditional use of marine resources agreements (Traditional Use of Marine Resources Agreements), in an effort to ensure environmental sustainability.

On the evidence provided for this assessment, it is unlikely that the goal of halting or reversing **water quality** decline by 2013 will be achieved to a level that would lead to the desired increase in ecosystem health and resilience. There has probably been little reduction in major risks to Great Barrier Reef values but this is uncertain because of the limitations of monitoring. Current activities in the coastal catchments are not demonstrably environmentally sustainable. Nor are they clearly economically sustainable, given the high value placed on the intact reef and the extent of the values jeopardised by poor water quality. While a comprehensive planning system is in place for addressing water quality, there are deficiencies in implementation and engagement with adjacent coastal land managers.

1. Introduction

Management effectiveness evaluation is defined as the assessment of how well protected areas are being managed – primarily the extent to which they are protecting values and achieving goals and objectives. IUCN has developed a framework for assessing management effectiveness (Hockings *et al.*, 2006) that has been widely applied around the world to develop specific assessment systems that are designed to meet the need to evaluate management effectiveness in different circumstances.

Good management needs to be rooted in a thorough understanding of the individual conditions related to protected areas, be carefully planned and implemented and include regular monitoring, leading to changes in management as required. The management cycle (Figure 1) identifies six important elements in this process that should, ideally, all be assessed if effectiveness of management is to be fully understood. Management:

- begins with understanding the context of the protected area, including its values, the threats that it faces and opportunities available, its stakeholders, and the management and political environment;
- progresses through planning: establishing vision, goals, objectives and strategies to conserve values and reduce threats;
- allocates inputs (resources) of staff, money and equipment to work towards the objectives;
- implements management actions according to accepted processes; and
- eventually produces outputs (goods and services, which should usually be outlined in management plans and work plans)
- that result in impacts or outcomes, hopefully achieving defined goals and objectives.

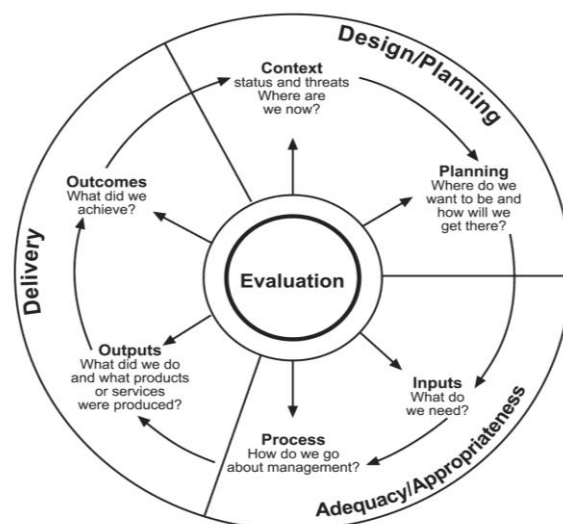


Figure 1: The Framework for assessing management effectiveness of protected areas (from Hockings *et al.*, 2006)

The criteria used to assess each element of the Framework are outlined in Table 3.

Table 3. IUCN-WCPA Framework for assessing management effectiveness of protected areas and protected area systems (from Hockings *et al.*, 2006)

Elements of management cycle	Design		Appropriateness / Adequacy		Delivery	
	Context	Planning	Inputs	Process	Outputs	Outcomes
Focus of evaluation	Assessment of importance, threats and policy environment	Assessment of protected area design and planning	Assessment of resources needed to carry out management	Assessment of the way in which management is conducted	Assessment of the implementation of management programmes and actions; delivery of products and services	Assessment of the outcomes and the extent to which they achieved objectives
Criteria that are assessed	Significance / values Threats Vulnerability Stakeholders National context	Protected area legislation and policy Protected area system design Protected area design Management planning	Resources available to the agency Resources available to the protected area	Suitability of management processes and the extent to which established or accepted processes are being implemented	Results of management actions Services and products	Impacts: effects of management in relation to objectives

Evaluation that assesses each of the elements of Figure 1 (and the links between them) provides a comprehensive picture of management effectiveness. All six elements shown in Figure 1 are important in developing an understanding of how effectively protected areas are being managed. They reflect three large “themes” of management: design (context and planning), appropriateness/adequacy (inputs and processes) and delivery (outputs and outcomes). It is important to assess all six elements in order to fully understand management effectiveness. For example, assessing only outcomes may indicate the objectives have been achieved but leaves it unclear whether it was due to good luck or good management; conversely if an outcome is not achieved then unless all six elements are assessed, it is hard to know if it was due to insufficient resources (inputs), poor planning or a problem with the process.

The evaluation system for the Great Barrier Reef Outlook Report was developed using this Framework and assesses all six elements. The assessment addresses the overall management of activities/issues that occur within the Great Barrier Reef rather than assessing each individual agency’s management of any particular issue or activity. It was also decided to consider some management activities extending outside the Great Barrier Reef Region. For example, water quality and climate change are both key issues for the Great Barrier Reef World Heritage Area, but the majority of the management efforts for both issues occur outside the Great Barrier Reef, and fall under the responsibility of all levels of government and a variety of agencies. The legal requirement for Outlook is to assess “...*the existing measures to protect and manage the ecosystem within the region*”; given the complexities outlined above, it was considered necessary to think beyond that specific jurisdictional area.

2. Assessment Methodology

The assessment system was developed by the Great Barrier Reef Marine Park Authority in consultation with the Independent Assessors (Appendix 1). It comprises a qualitative assessment of performance against all six elements of the IUCN Management Effectiveness Framework (Context, Planning, Inputs, Processes, Outputs and Outcomes) for each of twelve major thematic areas relevant to management of the Great Barrier Reef Marine Park (Biodiversity, Climate Change, Coastal Development, Defence, Fishing, Heritage, Marine-based Tourism, Ports & Shipping, Recreation (non-extractive), Scientific Research, Traditional Use and Water Quality). A four point scoring scale commonly used in management effectiveness evaluation systems was adopted. Criteria were developed under each Framework element with a total of 48 indicators across the six elements (Table 4). Scores for each IUCN Framework element were scaled to provide a total score out of 40 and a rating system developed to convert scores to an A (best) to D (worst) judgement as follows:

- If the total score is between 35 - 40, then the overall grading statement for that element is A
- If the total score is between 27 - 34, then the overall grading statement for that element is B
- If the total score is between 16 - 26, then the overall grading statement for that element is C
- If the total score is between 0 - 15, then the overall grading statement for that element is D.

Table 4. Indicators used to assess effectiveness of management of each component activity.

CONTEXT
CO1 ...the values in the Great Barrier Reef relevant to are understood by managers.
CO2... the local risks/threats (ie within/adjacent to the Great Barrier Reef) associated with are understood by managers.
CO3 ..the broader (incl. global) risks /threats relevant to are understood by managers.
CO4 ..the regional/national level influences relevant to are understood by managers.
CO5 ..the international/global influences relevant to are understood by managers.
CO6 ..the stakeholders relevant to are well known by managers.
PLANNING
PL1....there is a planning system in place that effectively addresses.....
PL2...the planning system for addresses the major risks/threats to the Great Barrier Reef's values
PL3....the actions for implementation regarding..... are clearly identified within the plan
PL4.... clear, measurable and appropriate objectives for management of have been documented
PL5....the main stakeholders &/or the local community are effectively engaged in planning to address
PL6 .. sufficient policy currently exists to effectively address
PL7... there is consistency across jurisdictions when planning for
INPUTS
IN1 ...current financial resources are adequate and prioritised to meet specific management objectives to address
IN2...current financial resources are secure (ongoing, or at least secure for the next 3 years) to address
IN3...current human resources within the managing organisations are adequate to meet specific management objectives to address

IN4...current human resources within the managing organisations are secure (ongoing, or at least secure for the next 3 years) to address
IN5... the right skill sets and expertise are currently available to the managing organisations to address
IN6... the necessary biophysical information is currently available to address
IN7 .. the necessary socio-economic information is currently available to address
IN8... the necessary traditional (Indigenous) knowledge is currently available to address
IN9... there are additional sources of non-government input (e.g. volunteers) contributing to address
PROCESSES
PR1. ...the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of
PR2... ..the local community is effectively engaged in the ongoing management of
PR3 ... there is a sound governance system in place to address
PR4... there is effective performance monitoring to gauge progress towards the objective(s)
PR5... appropriate training is available to the managing agencies to address
PR6... management of.... is consistently implemented across the relevant jurisdictions
PR7... there are effective processes applied to resolve differing views/ conflicts regarding
PR8... cumulative impacts of activities associated with..... are appropriately considered.
PR9.. the best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding
PR10 .. the best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding
PR11... the best available traditional (Indigenous) knowledge is applied appropriately to make relevant management decisions regarding
PR12... relevant national standards are identified and being met regarding
PR13... relevant international standards are identified and being met regarding
OUTPUTS
OP1... to date, the actual management program (or activities) have progressed in accordance with the planned work program for
OP2 .. implementation of management documents and/or programs relevant to..... have progressed in accordance with timeframes specified in those documents
OP3... the results (in OP1 above) have achieved their stated management objectives
OP4... to date, products or services have been produced in accordance with the stated management objectives for
OP5... the knowledge base for within agencies has increased over the last 3-5 years.
OP6.. the knowledge base for.... in the wider community has increased over the last 3-5 years.
OUTCOMES
OC1...the relevant managing agencies are to date effectively addressing and moving towards the attainment of the desired outcomes.
OC2... the outputs relating to are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)
OC3... the outputs (refer OP1 & 3) for.... are reducing the major risks and the threats to the Great Barrier Reef
OC4... use of the Great Barrier Reef relating to is demonstrably environmentally sustainable
OC5... use of the Great Barrier Reef relating to is demonstrably economically sustainable
OC6... use of the Great Barrier Reef relating to has demonstrably enhanced community understanding and/or enjoyment
OC7... the relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address

The assessment system was reviewed in a workshop attended by stakeholders from the major State and Commonwealth agencies involved in the management of the Great Barrier Reef. At the workshop, participants compiled information, data sources and lists of information sources relevant to making a judgement about performance in relation to each of the 48 indicators. Additional information relevant to each item of assessment

was compiled by staff of the Great Barrier Reef Marine Park Authority and the package of information was provided to the independent assessors. This information and key source documents were reviewed by the independent assessors. The sheer volume of source material provided meant that not all documents could be reviewed by the assessors but attention was focussed on those that were most directly relevant to the issue under consideration. The assessors also attended the Outlook Forum workshop in September, 2008 where they were able to discuss management of the Great Barrier Reef with a diverse range of stakeholders.

The independent assessors then met to review evidence and assign an initial rating to each of the indicators. The rating was agreed by consensus following discussion of the available evidence and the rating and the reasons for assigning the rating (key points of evidence or other considerations relating to the rating) were noted in a standard proforma (see Appendix 1). The ratings and reasons were subsequently discussed with staff from the Great Barrier Reef Marine Park Authority, Marine Park managers from the Queensland Environmental Protection Agency and other stakeholders and knowledgeable individuals. A workshop was also held with the Chairs of the Great Barrier Reef Marine Park Authority's Reef Advisory Committees. Based on this open and iterative process of discussion and review, the assessors adjusted a number of assessments where improved knowledge and understanding indicated that the original ratings was either too high or too low and the list of evidence supporting the assessment was refined as necessary.

It should be noted that the assessment has been based on documentation available and advice provided before the end of September 2008. In the course of refinement of the draft report, updated information was provided on specific issues discussed but no attempt has been made to comprehensively update the report based on material which may have become available after September 2008.

3. Assessment Findings

Detailed results of the assessment of each component management activity against the 48 indicators are provided in Appendix 2. A summary of the assessment of each component activity is set out below.

3.1 Biodiversity protection

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

Biodiversity conservation is the primary objective for much of the management action taken on the Great Barrier Reef through an array of programs and mechanisms rather than a single clearly focused program. Based on the available information most species are maintaining healthy populations; a small number are known to be suffering serious declines; most populations of threatened species have stabilised but are recovering weakly. However, there is little information on the changing extent and condition of most habitats.

Management is undertaken using an array of measures, principally zoning plans, but also incorporating management plans, permit assessments, site management, education and best practices. A potentially complex and confusing management regime has been simplified through inter-governmental coordination, for example, the zoning plans. Depending on the jurisdiction that applies, the lead agency is either the Great Barrier Reef Marine Park Authority or the Queensland Environmental Protection Agency. The Department of the Environment, Water, Heritage and the Arts, the Australian Quarantine Inspection Service and the Department of Primary Industries and Fisheries also have some management responsibilities.

The Great Barrier Reef Region is an extensively studied biological region, major risks and threats are well documented and gaps in knowledge of some deep water and remote habitats are well recognised. Risk assessment and management procedures are in place for major threats and most issues are well understood by managers but all are not necessarily effectively addressed. Key stakeholders have been identified and are generally well known to managers through Reef Advisory Committees, Local Management Advisory Committees and other consultative mechanisms.

There is no comprehensive documentation of risks to biodiversity values and mitigation measures applied in the Great Barrier Reef Region. The Representative Areas Program and subsequent revision of the zoning plan has provided a robust framework for biodiversity protection while threat abatement plans, recovery plans and specific actions (e.g. Reef Protection Markers, Dugong Protection Areas) are in place to ensure that biodiversity issues are adequately addressed. Levels of protection were increased as a result of the rezoning of the Great Barrier Reef Marine Park in 2004. This is the most significant action taken explicitly to enhance biodiversity protection. However, zoning provisions only address biodiversity conservation needs at a broad level and while some threats are addressed in the other plans outlined above, these only cover a

small proportion of the total Great Barrier Reef Region and other issues, such as coastal development and agricultural run-off are not addressed. Cumulative impacts, ecosystem resilience and connectivity issues are currently lacking or not reflected explicitly in most planning activities.

Significant financial and human resources are devoted to limiting the overall environmental impact of potentially damaging activities. While these efforts are assumed to benefit biodiversity there is little capacity to track resource allocations specifically targeting biodiversity objectives. The availability of staff with relevant skill sets and expertise is variable across the range of management agencies involved in biodiversity protection.

The biophysical information base relevant to most key decisions is adequate but there are recognised knowledge gaps related to some specific taxa, ecosystems and regions. Economic information relevant to decisions affecting some key industries is available but there is relatively less information on social issues and trends. Relevant traditional (Indigenous) knowledge is often not available or accessible to managers whether because of a lack of trust on the part of Traditional Owners or because such knowledge is regarded as a form of empowerment that is not lightly shared.

Clear legislation and management systems provide the essential processes for good governance with regard to biodiversity protection but performance monitoring is limited to a small number of target species such as dugong and some marine turtle species. Staff training at a base level is good and specific additional training is provided to staff dealing with some issues but training on adaptive management is lacking.

The limited identification of specific biodiversity goals and objectives in plans limits the capacity to track outputs and outcomes but the knowledge base both within management agencies and in the wider community has increased in recent years.

3.2 Climate Change

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

The Commonwealth Department of Climate Change has lead responsibility for climate change policy development and is complemented within Queensland jurisdiction by the Queensland Environmental Protection Agency. The Department of the Environment, Water, Heritage and the Arts, the Great Barrier Reef Marine Park Authority and the Queensland Department of Premier and Cabinet also play significant roles. The management agencies responsible for the Great Barrier Reef are contributing significantly to the development of international best practice for managing climate change issues as they relate to coral reef ecosystems.

The possibility that promising outcomes from local and regional management action could be overtaken by global influences is disconcerting but uncertainties about the precise nature and pace of change has led management agencies to focus on the

importance of enhancing capacity to adapt to change in both ecological and social systems.

A comprehensive vulnerability assessment for the Great Barrier Reef provides good contextual information for management of climate change implications. Managers and key community stakeholders recognise that while climate change drivers and influences are largely global in nature, regional and local activities give rise to specific vulnerabilities which require action. Key threats such as increasing sea temperatures, ocean acidification, increased storm events and associated changes to freshwater inputs, currents and connectivity are recognised.

Climate change plans and strategies are in place. While objectives are generally clearly identified, the challenge remains to translate them into specific policies and measurable actions for on-ground management which can be consistently applied across jurisdictions and integrated into water quality protection and other specific plans as appropriate in order to increase the resilience of the Great Barrier Reef ecosystem.

Significant resources are being allocated at all levels through the national climate change adaptation framework to assess threats and develop plans. Resourcing the implementation of plans is yet to be considered in any detail.

Human resources within the management agencies include specialist staff with the skill sets to identify and apply the best available information for management of climate change issues.

Gaps in available biophysical information are recognised and there is a particular need to clarify the flow-on socio-economic implications of shifting baselines. Evaluation of resilience indicators and completion of a reef resilience atlas is particularly important to address cumulative impacts, both biophysical and socio-economic. Efforts are underway, working with Traditional Owners to gather available traditional knowledge and ensure it is appropriately managed and applied.

There is considerable community engagement on climate change through programs such as Bleachwatch, Reef Guardian Schools and tourism industry input. While detailed action plans are still being developed, including monitoring, evaluation and reporting protocols to support adaptive management, pilot programs are being undertaken at demonstration sites to capture lessons which can be applied elsewhere. Relevant staff training is proceeding in parallel.

The management agencies responsible for the Great Barrier Reef are contributing significantly to the development of international best practice for managing climate change issues as they relate to coral reef ecosystems. The Great Barrier Reef Coral Bleaching Response Plan is being refined and work is underway to identify practical actions which can be taken at the regional and local level to mitigate specific vulnerabilities largely imposed by global influences.

3.3 Coastal Development

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

Management of coastal development is mainly through the application, principally at the local government level, of Queensland Government legislation and policy, including dedicated coastal protection legislation in the *Coastal Protection and Management Act 1995*. In addition, the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and, in some cases, the *Great Barrier Reef Marine Park Act 1975* serve to address the environmental impacts of some coastal works.

Despite an extensive planning framework provided by the *Integrated Planning Act 1997* and Queensland State Coastal Plan, the lack of integrated regional and local plans governing development of many of the coastal catchments indicates a shortcoming of the planning system and a major vulnerability for the Great Barrier Reef. Since 2004, the Queensland Government has begun a process of rolling out statutory regional plans in place of existing non-statutory plans. The *Far North Queensland Draft Regional Plan 2025*, due for release in early 2009, does pay particular attention to the significance of the Great Barrier Reef and the need to address threats to the ecosystem from coastal development activities. The population of the Great Barrier Reef catchment is increasing rapidly without full consideration of implications for the sensitive environments downstream. The continuing degradation of coastal environments along much of the coast gives little confidence that the values of the Great Barrier Reef are being protected. The Queensland Government's 2007 commitment to an accelerated regional planning program provides a mechanism for these issues to be addressed. In addition, the *Great Barrier Reef Marine Park Act 1975* was reviewed in 2006 and amended in 2008 to better integrate it with the *Environment Protection and Biodiversity Act 1999* and to simplify regulation, remove duplication and address gaps in protection. As part of that process, the Great Barrier Reef is now recognised as a being of "national environmental significance" under the *Act*. This means actions that have, or are likely to have, a significant impact require approval from the Australian Government Minister for the Environment, Heritage and the Arts.

A reasonable knowledge of the general impacts and issues arising from coastal development is evident in many documents related to Great Barrier Reef management. There is evidence of understanding global and national development pressures but this is not uniform across all agencies involved and there is a lack of a consistent set of goals and objectives to guide coastal development across all the agencies and sectors involved. Key stakeholders in coastal development activities are identified and known to managers.

The Queensland State Coastal Plan does not reflect the international significance of the Great Barrier Reef and only three of nine regional coastal plans have been completed. The state plan and the regional plans which are in place include policy provisions to address coastal use and development, water quality, scenic amenity and nature conservation while recognising the need to allow for development such as

marine infrastructure. These plans generally recognise threats and risks relevant to the Great Barrier Reef but risks such as loss of coastal wetlands and modification of floodplains are often not directly addressed or mitigated. Findings of a recent statutory review of the State Coastal Management Plan have indicated the need for revising the existing policy to ensure policy currency and remove duplication with more recent initiatives. The revision will also aim to better coordinate coastal planning under the *Integrated Planning Act 1997*. Implementation by local government is highly variable. The planning system, particularly the Integrated Planning Act, theoretically provides a framework within which the major threats and risks to Great Barrier Reef values can be addressed but few effective regional plans to guide local planning decisions have been finalised. Limited capacity in some local government authorities to deal with the complex issues involved in coastal development is a concern.

Some state agencies have sought to address limitations on resourcing of plan development and implementation by providing dedicated support for local Councils struggling in this regard. Pressure from stakeholders and high levels of staff turnover are significant issues in some areas. Engagement of stakeholders through planning processes is generally not comprehensive and balancing government priorities, community concerns and technical input is a significant challenge at the local level.

Compliance monitoring and enforcement is limited, further constraining prospects for addressing the cumulative impacts of coastal development decisions. Reasonable biophysical information is usually available to support decision making and good general socio-economic information is also available. There has been an increased knowledge base both within management agencies and in the wider community over the last 3-5 years.

3.4 Defence

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

The limited area of operations and high level of performance in minimising the environmental impacts results in defence activities presenting minimal threats to Great Barrier Reef values.

Responsibility for the conduct of training activities by the defence forces, including visiting overseas defence force members, lies with the Commonwealth Department of Defence. This includes the management of the environmental impacts of those activities subject to the application of the zoning plans.

The Strategic Environmental Assessment of Defence activities in the Great Barrier Reef World Heritage Area clearly documents the values of the Great Barrier Reef and adjacent areas. These are addressed in the management agreement with the Great Barrier Reef Marine Park Authority, ensuring a shared understanding of threats to Great Barrier Reef values, regional, national and global influences and key stakeholder issues.

Defence activities are allowed under the Zoning Plan. Strategic documents, policies and regular meetings facilitate implementation of the management agreement and ensure consistency of approach with other management agencies.

Appropriate Defence resources are devoted to environmental management and staff exchanges, secondments, patrols and systematic application of the Defence Heritage Toolkit assist maintenance of appropriate skill sets and expertise to manage defence activities and their potential impacts on Great Barrier Reef values.

Adequate biophysical information is available for management decisions. Navy hydrographic surveys improve knowledge of benthic habitats, ocean and weather conditions relevant to management. Local communities are engaged in planning for specific exercises and routinely through Defence Environmental Advisory Committees.

Training exercises are thoroughly planned and include good performance monitoring, debriefs and post exercise monitoring. The identification of clear performance indicators, particularly related to addressing cumulative impact issues remains a challenge.

A systematic approach ensures that statutory and planning timeframes are routinely met and results are reported in a timely manner. The knowledge base for confident management of defence activities in the Great Barrier Reef, both in the management agencies and in the wider community has increased in recent years as a result of consultative meetings and reports documenting efforts to minimise environmental impacts and the lack of evidence of death or injury to species such as dugong and marine turtles.

3.5 Fishing

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

Fishing is the principal extractive use of the Great Barrier Reef. In a World Heritage Area, management of fisheries is expected to pay particular attention to the application of the precautionary principle in deciding on acceptable levels of extractive use. Protection of Great Barrier Reef values relevant to fishing is variable and while progress is being made towards application of best practice management across the whole fisheries spectrum, it has not been rapid. Managers generally have a good understanding of commercial retained catch information, but quantitative assessments are focused on targeted species and habitats considered to be at risk of overfishing and associated impacts. There is limited information on the biology and stock distributions of non-target species as well as on the habitat values and broader cost/benefit analyses of the industry. The understanding of recreational fishing and the take by charter and Indigenous fishers is limited and cumulative impacts on ecosystem values are poorly understood.

Very little information is available on the population size and fate of protected species caught in fishing operations/activities. Broader issues such as climate change are increasingly acknowledged but they are yet to be effectively incorporated into management decision making. Fishing is managed at the state level rather than being explicitly focussed on the Great Barrier Reef and comprehensive protection of World Heritage values. While extensive liaison arrangements are in place to deal with some stakeholder sectors, engagement with others, such as recreational and Indigenous fishers is more challenging.

Arrangements to manage recreational fishing were revised in December 2008. Therefore, their effectiveness cannot be meaningfully assessed at this time. Commercial fishing plans generally identify key threats to Great Barrier Reef values and qualitative risk assessments have been undertaken for some fisheries but multi-species management arrangements make it difficult to manage significant single species and address cumulative impacts.

Performance management arrangements are being implemented in the commercial fishing sector. Management objectives are generally documented but it remains to be seen whether these are meaningfully measurable. Objectives for management of recreational, Indigenous and charter fishing are not well documented.

A comprehensive legislative framework exists to manage fisheries but there is no systematic cross sectoral approach to explicitly address Great Barrier Reef regional issues, cumulative impacts and World Heritage obligations and to translate this approach into locally relevant policies.

The scale and breadth of fishing activities place considerable pressure on management resources. While core resourcing is generally secure at low levels, population growth and concurrent growth in vessel registrations and potential increases in recreational fishing activity are increasing management needs particularly with regard to ecosystem-based assessments and compliance monitoring. Long-term monitoring is core funded and quantitative stock assessments are routinely completed for a limited number of target species, based on the potential risk of overfishing to the species and associated impacts. Non-core research funding is generally grant-dependent, with insufficient security to support longitudinal studies and trend analysis. Staff turnover in management agencies is impacting on management capacity.

The basis for assessment of stocks and ecological impacts has improved in recent years, but there are extensive gaps in biophysical information relevant to management. Socio-economic information relevant to management of commercial fishing is generally available but this is not the case for information relevant to recreational, Indigenous and charter fishing.

Engagement with stakeholders through consultation processes and advisory committees is generally good, especially for commercial fishing. However, this effective collaboration in management efforts is particularly challenging in the diffuse recreational and Indigenous fishing sectors.

Implementation of plans is often delayed and while the knowledge base relevant to management of fishing has increased in the last 3-5 years both within the management agencies and in the wider community, the timely application of new knowledge to decision making is limited and variable.

Approval processes are generally completed in a timely manner. However, management resources are routinely devoted to problem solving and resolving issues between commercial fishing sectors rather than addressing wider issues relating to protection of Great Barrier Reef values.

Commercial fisheries arrangements in the Great Barrier Reef are accredited against national sustainability guidelines requiring continuous improvement. Recent changes have been made (December 2008) in an effort to improve the sustainability of the recreational sector.

Physical habitats are generally well protected by zoning plans but management systems are not adaptive enough to deal with the pace of change and compounding issues arising from climate change and water quality impacts. Trends in fish stocks are variable between species with the commercial catch of some species trending down over the last three years.

Aquaculture (marine based) Despite being recognised as the fastest growing primary industry in Australia, Aquaculture is tightly controlled and a very limited activity in the Great Barrier Reef Region but aquaculture does occur in the adjacent catchment. Management of marine-based aquaculture has been evaluated separately from fishing but because of the low level of current activity it does not currently warrant the same level of attention in this evaluation as other issues. The following comments are provided by way of baseline for any future evaluation of management effectiveness in circumstances where activity has expanded. Management of land-based aquaculture is broadly considered along with related coastal development and water quality issues.

Managers are generally well aware of the contextual influences relevant to Aquaculture and understand associated risks and threats to site values.

A planning system is in place addressing the major risks and threats to Great Barrier Reef values potentially posed by marine-based aquaculture proposals, but because of the low level of activity to date, plans and policies have only been developed to a limited degree and lack clear, measurable and appropriate objectives.

Management agencies are adequately resourced with skilled staff able to assess and regulate specific marine-based aquaculture proposals but there is a limited amount of biophysical, socio-economic and traditional (Indigenous) knowledge relevant to a comprehensive approach to management of marine-based aquaculture in the Great Barrier Reef.

Processes to assess and manage marine-based aquaculture proposals have only been developed to a limited degree because of the low level of activity in the region.

Similarly, the knowledge base of management agency staff related to marine-based aquaculture has increased in recent years, but in the wider community there is limited knowledge of marine aquaculture activities and the low level of activity means that there have been few outputs or outcomes to provide the basis for an assessment of management effectiveness.

However, current management arrangements, plans and allocated resources are considered appropriate to deal with new proposals and any likely increase in activity.

3.6 Heritage

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

The Great Barrier Reef Marine Park covers 99% of the World Heritage Area, and many of its islands and most intertidal areas are protected by Queensland Government legislation. The Department of the Environment, Water, Heritage and the Arts is the lead agency for the management of Commonwealth heritage issues and the Queensland Environmental Protection Agency for matters within Queensland jurisdiction.

There is a clear focus on threats to biophysical values and the Great Barrier Reef 25 year Strategic Plan has an overall sustainability objective but this remains to translated into precise and measurable objectives.

Managers are well aware that they are looking after the largest World Heritage Area but more focused attention to cultural and historic heritage is needed if the full range of heritage values of the Great Barrier Reef is to be protected.

The nationally designated Great Barrier Reef Marine Park covers 99% of the World Heritage Area, while many islands and most intertidal areas are protected by Queensland state legislation. Management is complex but there is a good understanding across jurisdictions of the biophysical, cultural (including Indigenous), historic and socio-economic values of the Great Barrier Reef and specific stakeholders with an interest in cultural and historic heritage are well known to managers. Stakeholders with an interest primarily in natural or socio-economic values are a much more dispersed group, engaged through general planning and management consultation processes.

A Heritage Strategy endorsed in 2006 provides guidance for protection of Great Barrier Reef Marine Park heritage values by an array of planning instruments and policies. Historic shipwrecks are protected through specific legislation and entry controls. The *Great Barrier Reef Marine Park Heritage Strategy* identifies actions but does not set a timetable for implementation or indicate relative priorities. However, it does include provisions for monitoring and reporting on implementation. Risks and threats will be more explicitly addressed in new periodic reporting processes for World Heritage sites. The negotiation of Traditional use of marine resources agreements (Traditional Use of Marine Resources Agreements) and the work of the Indigenous liaison staff provide mechanisms for ensuring that Indigenous heritage issues are addressed although knowledge appears lacking about the broader context of intangible heritage including traditional knowledge, maintenance of cultural practice and related aspects not just tangible heritage issues. The importance of the Great Barrier Reef in Indigenous economies is not well understood and not incorporated fully into management.

Limited, financial and human resources are generally available for protection of heritage through site plans, lease arrangements and permits. Specialist expertise, particularly on built heritage and Indigenous heritage is not always available in management agencies. Agencies are improving skills in Indigenous management and increasing Indigenous engagement through the establishment of dedicated units and employment of Indigenous staff.

Management and governance processes are in place to support implementation of the Heritage Strategy using the best available biophysical and traditional knowledge. Socio-economic information is less explicitly used in management decision making.

While the Great Barrier Reef Marine Park strategy was completed within the statutory timeframe and site management plans for locally important sites are planned, implementation has not generally progressed in accordance with statutory timeframes. The draft Lady Elliot Island Heritage Management Plan has been produced in accordance with stated management objectives and management plans for 6 historic shipwrecks have been produced by the Queensland Museum.

The knowledge base both within the management agencies and in the wider community has increased in recent years.

3.7 Marine-based Tourism

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

Management of tourism in the Great Barrier Reef is focused on delivering high quality sustainable tourism experiences which have significant economic value to the local communities and to Australia. The environmental impacts of tourism, including social impacts such as crowding and the provision of a range of experiential opportunities, are minimised. This approach is given effect across the Commonwealth and Queensland jurisdictions through zoning plans, regulations, permits, management plans and a range of best practice and partnership initiatives.

High levels of visitor satisfaction are documented as are significant economic benefits to local communities. Longer term environmental performance will depend on clearer understanding of the implications of latent capacity in the permit system and improved documentation of the levels of specific activities undertaken in each location over time.

Great Barrier Reef management is focused on facilitating the provision of high quality sustainable tourism experiences which have significant economic value to the region and to Australia. Tourism stakeholders are well known to managers and engaged through the Tourism and Recreation Reef Advisory Committee, Local Management Advisory Committees and regional tourism bodies which provide a mechanism for

developing a shared perspective on threats to Great Barrier Reef values and regional and wider influences relevant to tourism activities.

Plans of management are in place for key sites including the areas representing less than 10% of the total Great Barrier Reef area which receive more than 80% of tourist visits. Some tourism activities occur over a wide area and planning systems do not currently provide clear and comprehensive strategic guidance for these tourism activities. Policies exist related to many aspects of tourism. Emerging issues such as the super-yacht industry are less well planned for. There is a high level of complementarity with joint management and policy arrangements between Great Barrier Reef Marine Park Authority and Queensland Parks and Wildlife, although there is no overarching reef-wide strategy to assist consistency across jurisdictions.

The environmental management charge paid by each tourist provides some 20% of the overall budget of Great Barrier Reef Marine Park Authority. The tourism permit system also provides useful information via operator returns and operator-conducted monitoring programs. The extensive use of temporary staff makes corporate knowledge vulnerable in some areas. Skills and expertise in management agencies are augmented through strong industry partnerships and tour operators are involved in data collection relevant to both biophysical and socio-economic values. The need to take time developing trusting relationships with Traditional Owners in some cases limits the availability of traditional (Indigenous) knowledge to be used in decision making by managers.

Sound governance, industry partnerships and management processes are in place to address tourism issues and the Great Barrier Reef is widely recognised as a world leader in this area. Joint permitting and assessment processes support consistency in approach across jurisdictions. Permit conditions seek to limit cumulative impacts but there is significant latent capacity within the permit system and as a result, cumulative impacts could be a problem if this latent capacity is actualised. Latent capacity in the high use areas is being addressed in Plans of Management through capping permits and introducing a booking system. While nearly half the tourists are carried by fewer than 50 highly accredited tour operators, a total of some 900 permits have been issued and there is little monitoring of which of the permitted activities are actually undertaken in specific locations on any one day.

Plans and permitting arrangements are systematic, professionally implemented and routinely documented in annual reports. A robust array of policies, position statements and guidelines have been developed targeting the sustainable tourism objective and the knowledge base both within the management agencies and in the wider community has increased in recent years and have contributed to reducing the major risks to Great Barrier Reef values from marine based tourism.

3.8 Ports and Shipping

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

Shipping in the Great Barrier Reef is managed by several government agencies including the Australian Maritime Safety Authority, Maritime Safety Queensland, the Great Barrier Reef Marine Park Authority and the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government. Port management is the responsibility of the Queensland Government.

Evaluating the management of ports and shipping highlights that they pose different suites of issues for the Great Barrier Reef. Consideration of port establishment and management issues overlaps with an examination of the issue of coastal development. Shipping management is reducing the risk of incidents and environmental management practices in many ports appear to be limiting impacts of port activities. Planning to address the growth and long term impacts of ports and shipping activities is underdeveloped. This planning could be improved so as to provide a more developed overarching strategy for port and shipping activity and to ensure that the current positive outcomes in relation to ports and shipping are maintained in the future. For example, the Coal Infrastructure Program of Actions published in 2008 documents \$9.7 billion in committed and planned port developments in Queensland. This document provides good planning for investment but does not set out any strategic policies or guidelines for coal-related port development directly affecting the Great Barrier Reef Region. Most planning appears to be responsive rather than strategic and proactive. Whilst this is, in part, due to the nature of the industry, nevertheless it may result in increased vulnerability of the Great Barrier Reef to impacts arising from port and shipping activity.

The Great Barrier Reef system of navigation aids, communications, shipping incident response plans and environmental management plans for port facilities demonstrate recognition of the values of the Great Barrier Reef and the sensitive environments in which ships are moving. However some risks, such as those posed by biofouling, ballast water discharges and containerised chemicals are not yet fully addressed. Increased ship size and other global influences are recognised and there is engagement with recognised stakeholders through annual meetings to identify and address emerging issues.

Many agencies are engaged in risk-based planning related to shipping and there is good planning at the individual port level. Plans for incident response and environment protection generally lack defined targets and specifications for monitoring and response. There is a lack of coordination and planning for vessel waste reception.

There is uncertainty in management agencies about resourcing levels and capacity to deal with expected workloads should economic circumstances turn around and lead to a resumption in the demand for growth in ports and shipping. There are dedicated resources for pollution incident prevention and response but monitoring for introduced

pests is expensive and not adequately defined, funded or implemented. Individual port corporations have substantial resources and appropriately qualified and experienced staff, notwithstanding some resource limitations as a result of global expansion in shipping and port activities. Staff turnover is a concern for both management agencies and port corporations. The complexity of tasks and poor coordination across jurisdictions has resulted in a lack of strategic leadership.

A sound system of governance, stakeholder engagement and other management processes is in place. There is high level coordination of every-day activities and incident response, access to areas outside shipping lanes and management of cruise ship access to high use areas seems to be effective. An Australian Maritime Safety Authority risk assessment is undertaken every 6 months but the absence of clear and measurable objectives makes performance monitoring problematic. There is extensive pollution incident response training but introduced marine pests training, coordination, monitoring and response are inadequate. While shipping rules are nationally uniform, the independence of individual port corporations makes consistency across jurisdictions a challenge, especially when it comes to addressing cumulative or compounding impacts.

Pollution incident response plans are well documented, resourced and reviewed. There are few shipping incidents or reports of non-compliance but progress on addressing issues such as containerised chemical risk and introduced marine pests has been slow. The absence of clear measurable objectives leads to a focus on simply monitoring trends. Agency environmental management staff turnover and industry shortages result in a loss of shipping and port expertise. Local community knowledge of port related issues has increased in the last 3-5 years but knowledge of shipping issues remains poor.

There are relatively few incidents threatening Great Barrier Reef values relative to the large number of shipping movements in and through the area. Invasive species, new port developments and port expansion issues continue to pose challenges.

3.9 Recreation (non-extractive)

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

The responsibility for management of non-extractive recreation is spread across a variety of Commonwealth and Queensland government agencies. Principal among these are the Great Barrier Reef Marine Park Authority, the Queensland Environmental Protection Agency and Maritime Safety Queensland.

Threats to Great Barrier Reef values from recreational use are generally being reduced through zoning plans, plans of management, policies and guidelines such as Responsible Reef Practices and day-to-day field operations. Specific issues such as impacts from sewage discharge from vessels and continued commitment to community partnership programs have begun but are areas that still require focus.

The Great Barrier Reef values which attract large numbers of visitors are well documented and threats to those values from population pressures, increased vessel registrations, marinas and small vessel sewage discharges have been identified by management agencies for attention. Wider influences such as increasing numbers of super-yachts, climate change and changes in travel patterns have been identified and discussed with Reef Advisory Committees and Local Management Advisory Committees.

There is no overarching document explicitly focused on recreation to guide planning for recreational use of the Great Barrier Reef despite the increasing coastal population in the catchments and hence likely growth in levels of recreational use. Zoning plans cover higher impact activities and address many of the traditional issues giving rise to conflicts between user groups. Plans of management are in place for high use areas and specific site plans are in place or proposed.

Limited resources are allocated explicitly to management of recreation activities. Management is generally indirect and implicitly undertaken as part of routine field operations. Enhanced activity on community engagement has resulted in improved skills and expertise for management agency staff dealing with recreational users of the Great Barrier Reef. The local knowledge of staff is high, good biophysical information is generally available but there is only limited social research data and traditional (Indigenous) knowledge relevant to management of recreation. Extensive programs such as volunteer groups and Reef Guardian Schools provide opportunities for wider involvement in management of recreation-related issues.

Good governance and management processes are in place to address recreation issues but the scale of the Great Barrier Reef and the dispersed nature of the activities involved pose challenges. Local Management Advisory Committees as well as Plan of Management consultation processes are effectively used to engage stakeholders and together with zoning plans provide a robust framework for accountability. Satisfaction ratings from recreational visitors are high but there is little recreational impact monitoring, recreational use compliance is a relatively low priority and more focus is placed on managing tourism. Coordination between management agencies on recreation is still lacking. Available biophysical information is used to inform site management and research is underway to provide baseline information more directly relevant to recreational use.

Despite the lack of targeted management objectives, it is clear that quality recreation products and services have been provided. Recent increases in the knowledge base in management agencies and the wider community related to managing recreation impacts should be further enhanced with the release of reports on reviews and market segmentation research currently underway.

3.10 Scientific Research

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

This evaluation has concentrated on the management of research in the Great Barrier Reef through permits and accreditation mechanisms but has also included consideration of the effectiveness of identification of research priorities. The wider questions of the availability and application of knowledge gained from scientific research are separately considered in the evaluations of inputs and processes relevant to management of other specific issues (refer Table 2).

Management of research in the Great Barrier Reef is moving towards the attainment of desired outcomes and reducing risks and threats to Great Barrier Reef values. The need to more effectively manage research through implementation of the Permits, Compliance and Management System (PCaMS) is recognised. Research activities are generally considered to be environmentally sustainable and through the maintenance of effective partnerships which are demonstrably enhancing community understanding and enjoyment of the Great Barrier Reef.

Historically research in the Great Barrier Reef has been focused on biophysical systems but there has been more recent interest in socio-economic drivers. Risks and threats to Great Barrier Reef values from research activities are recognised and reflected in the Scientific Research Policy. Research priorities are set taking account of these and broader influences. Research agreements with key research institutions provide one basis for dialogue between researchers and management agencies.

Statutory regulations, the zoning plan and specific policies guide the management of research in the Great Barrier Reef. Regulations provide clear and measurable objectives for research activities, the zoning plan and policies guide how it is managed. Co-accreditation arrangements are in place to ensure consistency between jurisdictions and permits require stakeholder and local community engagement as necessary.

The Great Barrier Reef supports a large amount of research funded from multiple sources. Resources available for the management of research are limited with a single research assessor in the Great Barrier Reef Marine Park Authority primarily responsible for assessing permit applications, managing accreditation and ensuring environmental management plans are developed as well as contributing to the formulation of regulations and policies associated with research.

Staff in management agencies have sufficient research skills and expertise to effectively manage research activities in the Great Barrier Reef. Sufficient biophysical information is available to manage research but socio-economic information is not always readily available. All research proposals potentially sensitive to Traditional Owners are referred to the relevant Indigenous liaison staff for guidance.

Robust management processes and governance arrangements are in place to manage research in the Great Barrier Reef with the Great Barrier Reef Marine Park Authority, Queensland Environmental Protection Agency and Queensland Department of Primary Industries and Fisheries as the lead agencies. Statutory regulations, the zoning plans and specific policies guide the management of research. Cumulative impacts will be better addressed when environmental management plans are prepared for high use Scientific Zones and the PCaMS is further developed. There is a clear commitment to adhere to the Environment Protection and Biodiversity Conservation Act requirements for access to biological resources and the equivalent provisions of the Convention on Biological Diversity.

Accreditation arrangements are in place with 8 institutions and the 250 current research permits have generally been issued in a timely manner but the development of environmental management plans for scientific research zones has been slow. Only one plan is completed with another two in draft form. Annual reports by accredited institutions are provided as required by MoUs and permit conditions are usually complied with. The knowledge base for managing research within agencies has increased in recent years with new information being incorporated into management decisions. The knowledge base in the wider community has also been expanded through programs such as Eye on the Reef and Reef Guardian Schools.

3.11 Traditional use

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

It is impossible for non-Indigenous evaluators working to a tight reporting timeframe, and hence without capacity to consult widely with Indigenous communities, to do other than rely on publicly available documents and consultation with Indigenous liaison staff of managing agencies in order to assess, in very broad terms, the effectiveness of efforts to manage traditional use of marine resources by Indigenous people.

Progress has been slow, although management and consultation processes are helping to reduce some of the major risks to Great Barrier Reef values. While there is very limited information available on the take of dugong and marine turtles, the precautionary principle is applied in negotiations on Traditional use of marine resources agreements, in an effort to ensure that traditional use is environmentally sustainable. However it is important that management of traditional use is not seen primarily as a “threat” arising from the impacts of traditional hunting of turtle and dugong. Indigenous interest in the use of marine resources as part of cultural practice is strong and needs to be considered in management arrangements.

The Great Barrier Reef Marine Park Heritage Strategy acknowledges the importance of traditional use of marine resources by people identifying with the 70 or more clan groups along the Great Barrier Reef coast. The strategy identifies specific strategies for action to protect Indigenous Sea Country heritage. Coupled with the reef-wide

framework for managing traditional use of marine resources, the strategy provides the basis for negotiation of traditional use of marine resources agreements (Traditional use of marine resources agreements) with Traditional Owners. The complexities associated with this issue are well appreciated by managers, especially as they relate to harvesting of threatened and migratory species and the interaction between cultural sensitivities and other management imperatives.

The reef-wide framework, along with Traditional use of marine resources agreements and Indigenous Land Use Agreements (ILUAs) provides a robust planning framework to manage traditional use. Aspiration statements, clear objectives and implementation plans are part of the Traditional use of marine resources agreement package but the effectiveness of engagement of stakeholders and local communities is highly variable. Currently applied mechanisms are not necessarily well matched to Traditional Owner approaches. There are particular difficulties for Traditional Owners in taking on representational roles. Policies to date have focused on the *National Partnership Approach to Sustainable Harvest of Dugongs and Marine Turtles* with no clear position being enunciated on traditional fishing. Complementary zoning and almost identical provisions for traditional use within marine park jurisdictions are matched by strong consistency on commitment and outcomes though there is limited consistency on mechanisms for delivery.

Financial and staffing resources for effective management of Traditional Use are currently deficient in relation to the size of the management task. The Indigenous element of the Reef Rescue Plan has recognised the need to provide additional resources for the period to 2013 and the need for more staff to manage an enhanced Traditional use of marine resources agreement program and Sea Country Partnerships program with particular reference to servicing geographically remote priority areas. Ensuring effective inputs to engagement processes is a challenge. Developing the skill sets and expertise of all staff is recognised as critical rather than simply focusing on employment of Indigenous staff. There is still limited capacity on both sides to gather relevant data, especially related to socio-economic drivers and traditional knowledge.

Management processes exist but matching the most appropriate mechanism to the specific situation is a challenge. There are significant differences in governance arrangements between management agencies and Indigenous governance practiced by Traditional Owners. Differences on policies and priorities can also complicate governance. In these circumstances performance monitoring is limited and problematic. On the positive side, many Traditional Owners see partnerships with Government through Traditional use of marine resources agreements and Sea Country Partnerships as a mechanism to reinvigorate traditional law so that younger Traditional Owners apply it appropriately. The need to build Traditional Owner capacity to manage traditional use with an understanding of both cultural and scientific inputs to decision making is not yet adequately addressed.

Four Traditional use of marine resources agreements have been finalised, covering almost 5% of the Great Barrier Reef area (more than 19,000km²) which have involved engagement with 13 of the approximately 70 Traditional Owner groups in the region. While the pace of negotiation and implementation of Traditional use of marine resources agreements is driven largely by Traditional Owners and their local capacity rather than by a government or agency agenda and timelines, there remains limited capacity within management agencies to deal with development of Traditional use of marine resources agreements simultaneously with many communities. Traditional Use

of Marine Resources Agreements have not been developed as yet for those areas where the take of dugong is highest and the negotiations are likely to be most difficult. The knowledge base in agencies relevant to traditional use has increased in recent years with development of the Traditional Owner Information System, including Traditional Owner Profiles, Story Place and the Cultural Heritage Databases.

There are high levels of sensitivity about the collection, storage and accessibility of traditional knowledge. Traditional use of marine resources agreements and Sea Country Partnerships are important mechanisms for building trust and developing protocols for appropriate use of traditional knowledge across the spectrum of Great Barrier Reef management decisions.

3.12 Water quality

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

Context	Planning	Inputs	Processes	Outputs	Outcomes

The overall legislative mandate for the management of water quality in the Great Barrier Reef catchment falls to the Queensland Government, principally through the Department of Natural Resources and Water, with some responsibility also resting with the Queensland Environmental Protection Agency.

Water quality is a social as well as environmental issue and is being addressed as such by managers. To address the issue of declining water quality of the reef, a Reef Water Quality Protection Plan (Reef Plan) was endorsed by the Prime Minister and Premier in October 2003. An independent audit and report to the Prime Minister and the Premier of Queensland on the implementation of Reef Plan was undertaken in 2005. While positive outcomes were achieved over the last five years, input from stakeholders and new scientific evidence confirmed the need to renew and reinvigorate the Reef Plan to ensure the goals and objectives will be met.

Overall, slow progress is being made towards attainment of the desired outcomes. On the evidence provided for this assessment, it is unlikely that the goal of halting or reversing water quality decline by 2013 will be achieved to a level that would lead to desired increase in ecosystem health and resilience. There has probably been little reduction in major risks to Great Barrier Reef values although it is hard to be sure because of the limitations of monitoring. Current activities in the coastal catchments are not demonstrably environmentally sustainable. Nor are they clearly economically sustainable, given the high value placed on the intact reef and the extent of the values jeopardised by poor water quality.

Values related to water quality, especially as influenced by agricultural run-off from coastal catchments are well documented in the Reef Water Quality Protection Plan and associated documents. Particular risks and threats arising from the 400% increase in sediments and nutrients since European settlement and the loss of catchment wetland areas are understood by managers. The climate change vulnerability assessment

examines broader threats and influences and managers work with key stakeholders on the preparation of the annual marine monitoring report to inform judgements about local adaptation measures.

A comprehensive planning system is in place centred on the Reef Water Quality Protection Plan with clearly documented objectives but delivery within the planning framework is lacking. Water Quality Improvement Plans are in place for only 6 of 10 priority catchments and comprehensive land use planning is not sufficiently focused on water quality protection. Actions for implementation are identified at a high level though identification at the farm scale is lacking. While required policies are largely in place and engagement is increasing, rural industries and land managers are not fully engaged and sectoral consistency is problematic.

Introduction of the *Great Barrier Reef Marine Park (Aquaculture) Regulations 2000* resulted in a significant improvement in the environmental performance of land-based aquaculture facilities. Subsequent assessment and compliance auditing of these facilities by GBRMPA indicates substantial compliance with environmental conditions.

Considerable financial and human resources are allocated to addressing the issue from various sources. Significant funding from the Commonwealth and Queensland Governments is now in place, totalling in excess of \$400 million over five years. While this funding is considered secure, others, especially Natural Resource Management body funding are not secure, are usually time limited and project specific. Staff turnover and regional Natural Resource Management funding cycles make retention of quality staff difficult. Management agencies have the required skill sets and expertise available and good biophysical information is generally available, albeit from disparate and incomplete data sources. There is insufficient information available on the implications of changes in land use practices. Indigenous interest in land management is generally well understood and there are high levels of volunteer involvement in fieldwork and monitoring programs.

Industry engagement is variable and often suboptimal. There is limited monitoring of inshore waters, very limited catchment monitoring and very patchy monitoring of changes in land use practices. The recently released report card indicates that there is still a need for better implementation of the Reef Water Quality Protection Plan. Cumulative impacts from major agricultural activities are considered although chemical interactions along with cumulative and compounding impacts of non-agricultural activities are not addressed.

Whilst, some sound and relevant research is available and applied, coordination and delivery of science into management processes is inadequate. There are knowledge gaps around production systems and while water quality improvement plans are looking at socio-economic drivers, the information is not well coordinated. Water quality standards are identified but are not being met in some vulnerable inshore locations.

There have been many delays in the development and implementation of regional plans. The knowledge base relevant to water quality within the managing agencies has increased in the last 3-5 years though gaps remain; nutrient loss at the sub-catchment level is not well understood and high priority areas are not well identified in some catchments. Community surveys show good understanding of the problem, but not necessarily the solutions. The community knowledge base has increased, especially where water quality improvement plans are in place.

4. Elements of Effectiveness

A (35-40)	B (27-34)	C (16-26)	D (0-15)
Very Good	Good	Poor	Very Poor

B – Biodiversity; CC – Climate Change; CD – Coastal Development; D – Defence; EU – Extractive use (Fishing); H – Heritage; MT – Marine Tourism; P&S – Ports and Shipping; R – Recreation (non-extractive); SR – Scientific Research; TU – Traditional Use; WQ – Water Quality

4.1 Context

B	CC	CD	D	EU	H	MT	P&S	R	SR	TU	WQ

Understanding of values, threats, national and international influences and stakeholders is strong for all management issues assessed. This reflects a solid information and research base and a very mature understanding of the key values of the Great Barrier Reef in both a national and international context and the actual and potential threats to those values. Understanding of stakeholders is consistently strong across all issues (in fact, it shows the strongest performance across the entire range of assessment criteria).

4.2 Planning

B	CC	CD	D	EU	H	MT	P&S	R	SR	TU	WQ

Planning performance tends to be strongest where there are few organisations or levels of governance involved in the planning process. There are well developed planning systems in place although in the case of Coastal Development, the fractured nature of the planning regime is problematic. In the case of ports and shipping the project specific nature of planning means that a Great Barrier Reef-wide strategic view to direct development is generally not available. Lack of consistency across jurisdictions is the weakest aspect of planning.

4.3 Inputs

B	CC	CD	D	EU	H	MT	P&S	R	SR	TU	WQ

Adequacy of inputs is quite variable across the management issues, being particularly strong for Defence, Climate Change, Tourism and Research and weak for Coastal Development. Adequacy of socio-economic and Indigenous knowledge is a problem for most issues and one of the worst performing criteria across the whole assessment.

4.4 Process

B	CC	CD	D	EU	H	MT	P&S	R	SR	TU	WQ

Management processes are particularly strong for Defence, Tourism and Research and weakest for Coastal Management and Water Quality. Performance Monitoring, addressing Cumulative Impacts and application of Socioeconomic and Indigenous Knowledge are problematic for most issues. The extent to which Cumulative Impacts are being addressed is the weakest indicator across the entire management

effectiveness assessment. Stakeholder engagement and application of biophysical information are the strongest aspects of management across all issues.

4.5 Outputs

B	CC	CD	D	EU	H	MT	P&S	R	SR	TU	WQ

Delivery of desired outputs has been weakest for Coastal Development and Water Quality and strongest in relation to Defence, Tourism and Research. The Knowledge Base of the Management Agencies and Community has consistently improved. While the majority of management programs are progressing satisfactorily (with the exception of Coastal Management and Water Quality), timeframes frequently slip and it is not yet clear that the programs are achieving all their desired objectives.

4.6 Outcomes

B	CC	CD	D	EU	H	MT	P&S	R	SR	TU	WQ

Achievement of desired outcomes (values protected, threats reduced, long-term environmental and economic sustainability) is very variable across issues. Objectives in relation to community understanding of issues and development of effective partnerships are being achieved. Overall, greatest concern in relation to achievement of desired outcomes relates to Climate Change.

4.7 Summary

Management effectiveness challenges are evident for those issues which are broad in scale and complex socially, biophysically and jurisdictionally (i.e. climate change, coastal development, water quality. fishing). The corollary is that effectiveness is strongest on issues limited in scale or intensity and presenting only minor or moderate complexity (i.e. Defence and Scientific research). Modest effectiveness in management process and outputs for traditional use may only be sustained if shortcomings in management inputs are addressed.

The table below summarises performance across the six elements of the WCPA Management Effectiveness Evaluation Framework for management of the Great Barrier Reef, based on consideration of the individual performance in each of the thematic areas. Grading statements for each of the broad assessment criteria for the management effectiveness evaluation are given below

Context	Planning	Inputs	Processes	Outputs	Outcomes

Detailed information on the performance for each indicator is given in Appendix 3. Across the entire assessment the strongest performance was evident for the following criteria:

Context

- Understanding of values
- Understanding of global threats
- Understanding of regional influences
- Understanding of global influences
- Understanding of stakeholders

Processes

- Stakeholders effectively engaged
- Sound governance system in place
- Adherence to national standards for management

Outcomes

- Effective partnerships developed.

The weakest aspects of performance across the assessment were:

Inputs

- Necessary socioeconomic information available to decision makers
- Traditional Indigenous knowledge available to decision makers

Processes

- Cumulative impacts appropriately considered
- Traditional Indigenous knowledge applied appropriately in decision making.

4.7.1 Grading statements

The grade allocated to an assessment criterion is the “grade of best fit” calculated across the individual components of the assessment criteria. Some individual components of the criteria may be ranked higher or lower. These grading statements provide a guide to interpreting the assessment results.

Assessment	Assessment criteria	Grade	Grading statements
Management Effectiveness	Context – understanding of values, threats, regional/global influences and stakeholders		Understanding of values, threats, regional/global influences and stakeholders is good for most thematic areas
			Understanding is generally good but there is some variability across themes or components of the assessment criteria
			Understanding of values, threats, regional and global influences and relevant stakeholders is only fair for most thematic areas
			Understanding of values, threats, regional and global influences and relevant stakeholders is poor for most thematic areas
	Planning – adequacy of planning systems and practices		Effective planning systems that engage stakeholders are in place for all/most significant issues. There is adequate policy to manage issues that is consistent across jurisdictions.
			Effective planning systems that engage stakeholders are in place for many significant issues. Policy and consistency across jurisdictions is generally ok.
			Planning systems that engage stakeholders are deficient for a number of significant issues. Policy and consistency across jurisdictions is a problem for some issues
			Planning systems that engage stakeholders are deficient for many significant issues. Policy and consistency across jurisdictions is a problem for some issues.
	Inputs – adequacy of financial, staffing and information resources		Financial & staffing resources are largely adequate to meet management needs, biophysical, socio-economic & traditional (Indigenous) knowledge is available to inform management decision making
			Financial & staffing resources are mostly adequate to meet management needs, biophysical, socio-economic & traditional (Indigenous) knowledge

			is mostly available to inform management decision making although there may be deficiencies in some areas
			Financial & staffing resources are unable to meet management needs in some important thematic areas, biophysical, socio-economic & traditional (Indigenous) knowledge is variably available to inform management decision making and there are significant deficiencies in some areas
			Financial & staffing resources are unable to meet management needs in many thematic areas, biophysical, socio-economic & traditional (Indigenous) knowledge to support decision making is frequently deficiencies in some areas
Processes – adequacy of management systems and processes			The majority of management processes are appropriate and effective in addressing the management of the various thematic areas
			The majority of management processes are appropriate and effective in addressing management although there are deficiencies in relation to a small number of thematic areas or processes
			A minority of critical management processes show significant deficiencies across most thematic areas
			A majority of management processes show significant deficiencies across most thematic areas
Outputs – delivery of products and services and implementation of plans			Management programs are mostly progressing in accordance with planned programs and are achieving their desired objectives. The agency and community knowledge base is improving.
			Management programs are mostly progressing in accordance with planned programs and are achieving their desired objectives but there are problems in some thematic areas. The agency and community knowledge base is generally improving.
			Many management programs are not progressing in accordance with planned programs (significant delays or incomplete actions) or actions undertaken are not achieving objectives. The knowledge base is only growing slowly.
			Most management programs are not progressing in accordance with planned programs (significant delays or incomplete actions) or actions undertaken are not achieving objectives. The knowledge base is only growing slowly.
Outcomes – results of management actions in achieving goals, maintaining values			Desired outcomes are mostly being achieved, values protected and threats abated for most thematic areas, use of the Great Barrier Reef is largely environmentally and economically sustainable with good community engagement, understanding and enjoyment.
			Desired outcomes are being achieved in many thematic areas, values protected and threats abated for many thematic areas, use of the Great Barrier Reef is largely environmentally and economically sustainable with good community engagement, understanding and enjoyment.
			Desired outcomes, protection of values and abatement of threats are not being achieved at desirable levels in some critical thematic areas with likely eventual flow-on effects across the Great Barrier Reef. Critical aspects of the use of the Great Barrier Reef are not environmentally or economically sustainable.
			Desired outcomes, protection of values and abatement of threats are not being achieved at desirable levels in most thematic areas including critical areas with likely eventual flow-on effects across the Great Barrier Reef. Critical aspects of the use of the Great Barrier Reef are not environmentally or economically sustainable.

Bibliography

Hockings, M., Stolton, S., Leverington, F., Dudley, N. and Courrau, J. (2006) *Evaluating Effectiveness: A framework for assessing management effectiveness of protected areas*. 2nd Ed. IUCN Gland, Switzerland and Cambridge, UK.

Attachments

Appendix 1: Assessment proforma

Management Effectiveness Grading Statements

SCORING SYSTEM

N/A means not applicable

1 = Relevant but rarely true ~1-20% of optimum condition

2 = Relevant and sometimes true ~21-50% of optimum condition

3 = Relevant and often true ~51-80% of optimum condition

4 = Relevant and generally true ~81-100% of the optimum condition

Once scores have been entered for all management components on each page, then add all the scores for the relevant element, multiply by 10 and divide by the number of components in that element (e.g. for CONTEXT, total score x 10 divided by 6; for INPUTS, total score x 10 divided by 9); note that if any questions are considered N/A, then the number of relevant components (for the division) needs to be adjusted. In this way all scores for all six elements are scaled to a common base.

If the total score is between 35 - 40, then the overall grading statement for that management grouping is A

If the total score is between 27 - 34, then the overall grading statement for that management grouping is B

If the total score is between 16 - 26, then the overall grading statement for that management grouping is C

If the total score is between 0 - 15, then the overall grading statement for that management grouping is D

Thematic areas assessed were Biodiversity, Climate Change, Coastal Development, Defence, Fishing, Heritage, Marine-based Tourism, Ports & Shipping, Recreation (non-extractive), Scientific Research, Traditional Use and Water Quality.

<u>Component of management</u>		
<u>CONTEXT</u>	<i>Score</i>	<u>Justification</u>
CO1 ...the <u>values</u> ¹ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.		
CO2... the local <u>risks/threats</u> ² (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.		
CO3 ..the <u>broader</u> (incl. global) <u>risks /threats</u> ³ relevant to(insert mgt issue) are understood by managers.		
CO4 ..the <u>regional/national level influences</u> ⁴ relevant to(insert mgt issue) are understood by managers.		
CO5 ..the <u>international/global influences</u> ⁵ relevant to(insert mgt issue) are understood by managers.		
CO6 ..the <u>stakeholders</u> relevant to(insert mgt issue) are well known by managers.		

<u>PLANNING</u>	<i>Score</i>	
PL1....there is a <u>planning system in place that effectively addresses</u>(insert mgt issue)		
PL2...the <u>planning system</u> for(insert mgt issue) addresses the major risks/threats to the Great Barrier Reef's values		
PL3....the actions for implementation regarding.....(insert mgt issue) <u>are clearly identified within the plan</u>		
PL4.... <u>clear, measurable and appropriate objectives</u> for management of(insert mgt issue) have been documented		
PL5....the main <u>stakeholders &/or the local community are effectively engaged</u> in planning to address(insert mgt issue)		
PL6 .. <u>sufficient policy</u> currently exists to effectively address(insert mgt issue)		
PL7... there is <u>consistency across jurisdictions</u> when planning for(insert mgt issue)		

<u>INPUTS</u>	<i>Score</i>	
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¹ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

² Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

³ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

⁴ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

⁵ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

IN1 ...the current <u>financial resources</u> are <u>adequate and prioritised</u> to meet specific management objectives (refer PL4) to address(insert mgt issue)		
IN2...the current <u>financial resources</u> are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)		
IN3...the current <u>human resources</u> within the managing organisations are <u>adequate</u> to meet specific management objectives (refer to PL4) to address(insert mgt issue)		
IN4...the current <u>human resources</u> within the managing organisations are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)		
IN5... the <u>right skill sets and expertise</u> are currently available to the managing organisations to address(insert mgt issue)		
IN6... the necessary <u>biophysical information</u> is currently available to address(insert mgt issue)		
IN7 .. the necessary <u>socio-economic information</u> is currently available to address(insert mgt issue)		
IN8... the necessary <u>traditional (Indigenous) knowledge</u> is currently available to address(insert mgt issue)		
IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address(insert mgt issue)		

<u>PROCESSES</u>	<i>Score</i>	
PR1. ...the main <u>stakeholders &/or industry(ies)</u> are <u>effectively engaged</u> in the ongoing management of(insert mgt issue)		
PR2... ..the <u>local community</u> is <u>effectively engaged</u> in the ongoing management of (insert mgt issue)		
PR3 ... there is a <u>sound governance⁶ system</u> in place to address(insert mgt issue)		
PR4... there is <u>effective performance monitoring</u> to gauge progress towards the objective(s)		
PR5... <u>appropriate training</u> is available to the managing agencies to address(insert mgt issue)		
PR6... management of....(insert mgt issue) is consistently implemented across the relevant <u>jurisdictions</u>		
PR7... there are effective processes applied to <u>resolve differing views/ conflicts</u> regarding(insert mgt issue)		
PR8... <u>cumulative impacts</u> of activities associated with..... (insert mgt issue) are appropriately considered.		

⁶ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

PR9.. the best available <u>biophysical research and/or monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>		
PR10 .. the best available <u>socio-economic research and/or monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>		
PR11... the best available <u>traditional (Indigenous) knowledge</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>		
PR12... relevant <u>national standards</u> are identified and being met regarding <i>(insert mgt issue)</i>		
PR13... relevant <u>international standards</u> are identified and being met regarding <i>(insert mgt issue)</i>		

OUTPUTS	<i>Score</i>	
OP1... to date, the actual management program (or activities) have <u>progressed in accordance with the planned work program</u> for <i>(insert mgt issue)</i>		
OP2 .. implementation of management documents and/or programs relevant to..... <i>(insert mgt issue)</i> have progressed in accordance with <u>timeframes specified</u> in those documents		
OP3... the results (in OP1 above) have achieved their stated management objectives		
OP4... to date, products or services have been produced in accordance with the stated management objectives for <i>(insert mgt issue)</i>		
OP5... the knowledge base for <i>(insert mgt issue)</i> <u>within agencies</u> has increased over the last 3-5 years.		
OP6.. the knowledge base for.... <i>(insert mgt issue)</i> <u>in the wider community</u> has increased over the last 3-5 years.		

OUTCOMES	<i>Score</i>	
OC1...the relevant managing agencies are to date effectively addressing <i>(insert mgt issue)</i> and <u>moving towards the attainment of the desired outcomes.</u>		
OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the Great Barrier Reef are <u>protected</u> (refer CO1)		
OC3... the outputs (refer OP1 & 3) for.... <i>(insert mgt issue)</i> are <u>reducing the major risks</u> and the threats to the Great Barrier Reef		
OC4... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>environmentally sustainable</u>		
OC5... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>economically sustainable</u>		

OC6... use of the Great Barrier Reef relating to(insert mgt issue) has demonstrably enhanced <u>community understanding and/or enjoyment</u>		
OC7... the relevant managing agencies have developed <u>effective partnerships</u> with local communities and/or stakeholders to address (insert mgt issue)		

Appendix 2: Assessments for each Thematic Area

BIODIVERSITY **SCORING SYSTEM**

1 = Relevant but rarely true ~1-20% of optimum condition 2 = Relevant and sometimes true ~21-50% of optimum condition
 3 = Relevant and often true ~51-80% of optimum condition 4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	Score	<u>Justification</u>
CONTEXT CO1 ...the values ⁷ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Well studied ecosystem ▶ Discussions with managers and extensive science documentation. Lucas et al. 1997 values report ▶ Note lack of knowledge about deepwater and remote habitats
CO2... the local risks/threats ⁸ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Major threats well recognised and studied ▶ Gaps in knowledge are understood ▶ Risk assessment procedures in place for major threats
CO3 ..the broader (incl. global) risks /threats ⁹ relevant to(insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Climate change understood in broad detail within uncertainty that exists around magnitude of a likely changes ▶ Other risks like Invasive Alien Species (IAS) less understood but could be significant threat
CO4 ..the regional/national level influences ¹⁰ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Most issues are well understood by managers but not necessarily all effectively addressed (such as coastal development, ballast water discharge) ▶ August Outlook workshop with State agencies (August workshop)

⁷ Values include such things as biological significance (eg. biodiversity), socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

⁸ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

⁹ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

¹⁰ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

<u>Component of management</u>		
C05 ..the <u>international/global influences</u> ¹¹ relevant to <i>(insert mgt issue)</i> are understood by managers.	4	<ul style="list-style-type: none"> ▶ Most issues are well understood by managers but implications not yet fully considered in management (e.g. potential tourism trends) ▶ Outlook Forum ▶ August workshop ▶ Recent efforts at community liaison, Local Marine Advisory Committees etc and studies of user attitudes etc ▶ Takes account of the broader community interests in biodiversity
C06 ..the <u>stakeholders</u> relevant to <i>(insert mgt issue)</i> are well known by managers.	4	
<u>PLANNING</u>	Score	<u>Justification</u>
PL1....there is a planning system in place that effectively addresses..... <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ New zoning plan based on biogeographic representation ▶ Other planning documents explicitly address biodiversity values
PL2...the <u>planning system</u> for <i>(insert mgt issue)</i> addresses the major risks/threats to the Great Barrier Reef's values	3	<ul style="list-style-type: none"> ▶ Lack of comprehensive risk assessment across full range of risks ▶ Some threats addressed in plans but others (coastal development, IAS, climate change) are not well addressed ▶ Cumulative risk and geographic scale and connectivity not well addressed ▶ Closer to 50% performance than 80%
PL3....the actions for implementation regarding..... <i>(insert mgt issue)</i> are clearly identified within the plan	3	<ul style="list-style-type: none"> ▶ Zoning plan actions clear – and these are the key planning documents ▶ Approximately half of the listed threatened species are covered by recovery plans ▶ Some – e.g. climate change plan short on tangible on-ground actions – focus on research or broad policy statements
PL4.... <u>clear, measurable and appropriate objectives</u> for management of <i>(insert mgt issue)</i> have been documented	3	<ul style="list-style-type: none"> ▶ Zoning provisions only address biodiversity conservation needs at broad level, ▶ Plans of Management (e.g. Whitsundays) address biodiversity values, objectives and actions at more specific level but only cover a small part of Great Barrier Reef ▶ Beyond Zoning plan there is no overall biodiversity conservation plan for the Great Barrier Reef
PL5.....the main stakeholders &/or the local community are effectively engaged in planning to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ As for PL4 – stakeholder engagement mechanisms in place, well used for tourism and other specific issues but not necessarily for biodiversity
PL6 .. <u>sufficient policy</u> currently exists to effectively address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Environment Protection and Biodiversity Conservation Act and Great Barrier Reef Marine Park Authority Acts set broad policy but specific policy and strategy specifically for biodiversity seem to be lacking

¹¹ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>		Score	Justification
PL7... there is consistency across jurisdictions when planning for(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Formulation of comprehensive biodiversity conservation strategy would ensure consistency if signed by Ministerial Council would help. ▶ Zoning plans are consistent etc but some are not (Queensland Fish Habitat, & Great Barrier Reef Marine Park Habitat protection zones) 	
INPUTS	Score		
IN1 ...the current financial resources are adequate and prioritised to meet specific management objectives (refer PL4) to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ There is a lack of adequate resources, especially field management, for all components of biodiversity management objectives. ▶ Financial resources are prioritised both by government and DDM. ▶ Low 3 	
IN2...the current financial resources are secure (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ As secure as possible within government budgetary processes ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing 	
IN3...the current human resources within the managing organisations are adequate to meet specific management objectives (refer to PL4) to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Check with AF re adequacy ▶ Fisheries management by Queensland Department of Primary Industries and Fisheries is de facto biodiversity management Extent to which field staff actively manage biodiversity needs is questionable – focus on tourism, recreation ▶ Field management resources are marginal 	
IN4...the current human resources within the managing organisations are secure (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ As secure as possible within government budgetary processes 	
IN5... the right skill sets and expertise are currently available to the managing organisations to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Variable across relevant organisations – some very good (esp science and central planning, ▶ At least in DDM don't have the technical/specialist expertise for biodiversity management 	
IN6... the necessary biophysical information is currently available to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Information base relative to key decisions is good, while acknowledging that knowledge gaps exist for some taxa and regions ▶ Low 3. Very little known about deep water areas. ▶ Question for RR and GM, AF 	
IN7 .. the necessary socio-economic information is currently available to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Some economic information for key industries but apparent lack of social information 	
IN8... the necessary traditional (Indigenous) knowledge is currently available to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Need to discuss with Indigenous representative ▶ And key staff in Great Barrier Reef Marine Park Authority ▶ Inserted discussion from today's session ▶ DDM - Engagement with Traditional Owners is very resource intensive. Don't have capacity to do it regularly. 	

Component of management		
PROCESSES	Score	Justification
<p>IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address<i>(insert mgt issue)</i></p>	4	<ul style="list-style-type: none"> ▶ Clear mechanisms in place and apparently well used as evidenced by large number of volunteer groups and events: ▶ Volunteer groups and events include: <ul style="list-style-type: none"> ○ Reefwatch ○ CapReef ○ Reef Guardian Schools ○ NGO's on Reef Advisory Committees ○ Local Marine Advisory Committees ○ fisheries working groups ○ Mackay turtle watch ○ OUCH ○ Beach clean up days ○ Research stations ○ Seagrass Watch
<p>PR1... the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of<i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Extensive engagement as detailed in dot points below but engagement not explicitly on biodiversity needs. ▶ Expert advice sought on biodiversity matters through the Conservation, Heritage and Indigenous Partnerships Reef Advisory Committee (CReef Advisory Committee), Fisheries Reef Advisory Committee, Water Quality and Coastal Development Reef Advisory Committee, and the Tourism and Recreation Reef Advisory Committee. ▶ All appropriate managing agencies are involved in biodiversity protection management for the Great Barrier Reef, e.g. Environmental Protection Agency, Department of the Environment, Water, Heritage and the Arts, DPI&F, AMSA, etc. ▶ Industries are engaged in planning processes for biodiversity protection throughout the Great Barrier Reef (eg. through commitments in the 25 Year Strategic Plan).
<p>PR2... the local community is effectively engaged in the ongoing management of <i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Extensive engagement as detailed in dot points below but engagement not explicitly on biodiversity needs ▶ Extensively (refer CO6 and IN9) ▶ Local communities are involved in biodiversity protection generally through the Local Marine Advisory Committees (Local Marine Advisory Committees) and through planning processes for areas/specific places. ▶ Environmental Protection Agency, DPI&F and Great Barrier Reef Marine Park Authority have regional-based staff for engaging with local communities. ▶ Great Barrier Reef Marine Park Authority has dedicated liaison staff for key issues.

<u>Component of management</u>		
<p>PR3 ... there is a sound governance¹² system in place to address(insert mgt issue)</p>	<p>4</p>	<ul style="list-style-type: none"> ▶ Clear legislation and management systems as detailed in below: ▶ Good governance system – QueenslandQueensland req'd to review legislation every 10 years, Zoning Plan review every 7 years, etc. ▶ Many examples of good governance, (eg. Environment Protection and Biodiversity Conservation Act/Great Barrier Reef Marine Park Authority/QueenslandQueensland gov't relationships), however, some exceptions (eg. Great Barrier Reef MinCo not operating in recent times) ▶ Robust legislation arising from a strong legislative approach can sometimes lead to a lack of flexibility for proactive management ▶ Marine Incident Investigations – Great Barrier Reef: multi-agency toolkit
<p>PR4... there is effective performance monitoring to gauge progress towards the objective(s)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Limited, most is reactive but some significant targeted programs (AIMS LTMP, dugong etc) as detailed below: ▶ Examples of targeted monitoring (eg. seagrass, dugong aerial surveys, AIMS LTMP) but many aspects of biodiversity monitoring (eg, connectivity, thresholds for change, etc) not well understood. ▶ Most monitoring is reactive (eg. QueenslandQueensland Grouper deaths) ▶ Virtually no performance monitoring, with some exceptions: <ul style="list-style-type: none"> - RAP monitoring - Dugong aerial surveys - Stranding program
<p>PR5... <u>appropriate training</u> is available to the managing agencies to address(insert mgt issue)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Base training good, limited applied training for some issues but training for adaptive management could be strengthened.
<p>PR6... management of....(insert mgt issue) is consistently implemented across the relevant jurisdictions</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Mostly consistent and some mechanisms exist as detailed below: ▶ Extensively (refer PL7 plus DDM implementation), whale watching guidelines, Traditional use of marine resources agreement's/ILUA's/MOU's – all achieve protection of species ▶ Some inconsistent implementation – MINCO-DPA's ▶ SMG/IDC's/MINCO – are some of the formal mechanisms for coordination, but not always consistent outcomes (informal mechanisms exist between the managing agencies).

¹² Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

Component of management		
PR7... there are effective processes applied to resolve differing views/ conflicts regarding(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Planning and development control processes provide mechanism
PR8... cumulative impacts of activities associated with (insert mgt issue) are appropriately considered.	2	<ul style="list-style-type: none"> ▶ Limited attention to this issue ▶ Cumulative impacts are addressed through EIA processes but otherwise are not generally well considered ▶ Some risk mapping is underway (Alana Grech) ▶ EIA mechanisms generally do not deal with cumulative impacts effectively
PR9.. the best available <u>biophysical research</u> and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Zoning and planning, permit decisions ▶ Outlook Forum information
PR10 .. the best available <u>socio-economic research</u> and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Zoning and planning, permit decisions etc ▶ Information used in RAP could have been more extensive ▶ Skill sets: 2 for DDM perspective. Very good people at broad operational stuff (e.g. boats, weed removal, compliance). Lack the people that could design and implement a monitoring program. Lacking expert skills, rely on external expertise. ▶ We have monitoring programs to look at biophysical effects of zoning plan. We haven't focussed on social/economic effects as a result of the zoning plan. We're not measuring we achieved out operating principles in relation to social/economic. There is some but not at a sectoral level. There were less formal ideas about what we wanted the zoning plan to achieve from a social/economic perspective. ▶ We might have a reasonable grasp of a component of an issue. E.g. we survey tourists more than talking to the operators and their business side of things E.g the implications for the community if tourism businesses close due to lack of profitability.
PR11... the best available <u>traditional (Indigenous) knowledge</u> is applied appropriately to make relevant management decisions regarding (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Zoning and planning, permit decisions etc but information is considered limited ▶ Some traditional knowledge used in development of Traditional use of marine resources agreement's and Queensland Department of Primary Industries and Fisheries work ▶ Assigning protected area boundaries based on traditional knowledge is rare. ▶ Inserted words from this morning's discussion: ▶ Engagement with Traditional Owners is very resource intensive. Don't have capacity to do it regularly.
PR12... relevant <u>national standards</u> are identified and being met regarding (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ To the extent that these standards exist

<u>Component of management</u>			<u>Justification</u>
PR13... relevant international standards are identified and being met regarding (insert mgt issue)	4		▶ To the extent that these standards exist
OUTPUTS	Score		Justification
OP1 ... to date, the actual management program (or activities) have progressed in accordance with the planned work program for (insert mgt issue)	3		▶ Environment Protection and Biodiversity Conservation Act fisheries accreditation timelimes being met ▶ (Reef Water Quality Protection Plan (RWQPP) work program progressing but timeframes lagging in some areas ▶ Reef and Rainforest Research Centre (RRRC) annual research plans and timelimes largely met
OP2 .. implementation of management documents and/or programs relevant to..... (insert mgt issue) have progressed in accordance with timeframes specified in those documents	2		▶ RRRC annual research plans and timelimes largely met ▶ Environment Protection and Biodiversity Conservation Act fisheries accreditation timelimes being met ▶ Difficult to assess because: (a) No specific plans for biodiversity protection (b) No specific timelimes for biodiversity protection
OP3... the results (in OP1 above) have achieved their stated management objectives	2		▶ Lack of evidence of clear linkage between actions and control of major impacts on biodiversity ▶ Biodiversity action plans are implicit rather than explicit and it is difficult to assess in absence of specific plans for biodiversity protection
OP4... to date, products or services have been produced in accordance with the stated management objectives for (insert mgt issue)	3		▶ Basis of policy positions and guidelines developed re biodiversity even if these are not in response to a specific plan
OP5... the knowledge base for (insert mgt issue) within agencies has increased over the last 3-5 years.	4		▶ Extensive knowledge base ▶ New spp continually emerging ▶ Lot of new written information available – uptake is a problem (eg: new Great Barrier Reef Marine Park Authority staff don't know about RAP) ▶ Outlook Forum
OP6.. the knowledge base for....(insert mgt issue) in the wider community has increased over the last 3-5 years.	4		▶ Extensive and accessible knowledge base ▶ Accessibility to information through the internet is huge and growing ▶ Wider community knowledge has increased due to access to products & webpages
OUTCOMES	Score		Justification
OC1 ...the relevant managing agencies are to date effectively addressing(insert mgt issue) and moving towards the attainment of the desired outcomes.	3		▶ Based on evidence and conclusions in draft Biodiversity Outlook report

<u>Component of management</u>		
OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the <u>Great Barrier Reef are protected</u> (refer CO1)	3	<ul style="list-style-type: none"> ▶ See OP1 and OP2 ▶ Annual reports report on the progress to date on meeting desired outcomes
OC3... the outputs (refer OP1 & 3) for <i>(insert mgt issue)</i> are reducing the major risks and the threats to the Great Barrier Reef	3	<ul style="list-style-type: none"> ▶ Some risks reducing but some remain high or increasing: ▶ Reductions in fishing effort ▶ Capping and controlling high density tourism activity (POMs) ▶ However, coastal development, climate change and water quality are still high risks
OC4... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>environmentally sustainable</u>	3	<ul style="list-style-type: none"> ▶ Based on control of fishing, tourism impacts especially ▶ Loggerhead turtle population has increased at Wreck Island ▶ Humpback population has increased ▶ The number and size of coral trout in no-take zones has increased.
OC5... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>economically sustainable</u>	3	<ul style="list-style-type: none"> ▶ Tourism is major industry underpinned by biodiversity of Great Barrier Reef ▶ Fisheries is major industry also underpinned by biodiversity – <input type="checkbox"/> External market influences and costs of production are making some fisheries operating within the Great Barrier Reef unviable. Recreational fishing on the other hand is an important contributor to economic sustainability of regional communities.
OC6... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> has demonstrably enhanced <u>community understanding and/or enjoyment</u>	4	<ul style="list-style-type: none"> ▶ Surveys show 80% of Australians and 70% of Queensland visitors satisfied with their Great Barrier Reef experience
OC7... the relevant managing agencies have developed <u>effective partnerships</u> with local communities and/or stakeholders to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Various community programs, Local Marine Advisory Committees, Community partnerships

CLIMATE CHANGE SCORING SYSTEM

- 1 = Relevant but rarely true ~1-20% of optimum condition
- 2 = Relevant and sometimes true ~21-50% of optimum condition
- 3 = Relevant and often true ~51-80% of optimum condition
- 4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
<u>CONTEXT</u>		
CO1 ...the values ¹³ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Vulnerability Assessment ▶ Climate Change Action Plan ▶ Climate change is considered the most significant long term threat to the Great Barrier Reef. ▶ Although climate change is a global and national issue, the Great Barrier Reef is vulnerable at a local and regional level. ▶ The first impacts of climate change were observed in 1998 during the mass coral bleaching event that summer. ▶ Earlier signs of bleaching discovered in coral cores dating back to 1970s but not mass bleaching. ▶ Reef-wide mass coral bleaching events in 1998 and 2002 affected 50 to 60% of Great Barrier Reef reefs respectively, with up to 5% of reefs suffering serious damage in both events. ▶ Now scientific consensus (>98% certainty) that observed and projected climate change is due to human activities (IPCC 4th Assessment Report) ▶ Link between Indigenous people and biodiversity values not well understood
CO2... the local risks/threats ¹⁴ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Although climate change is a global and national issue, the Great Barrier Reef is vulnerable at a local and regional level. ▶ Vulnerability Assessment ▶ Climate Change Action Plan ▶ Regional impacts from climate change include near-complete nesting failure at key seabird nesting cays during 2002 and 2005; and the bleaching event of 2006 that was confined to the southern Great Barrier Reef only, with 40% coral mortality at some locations. ▶ Many components of the Great Barrier Reef ecosystem are vulnerable to climate change, such as marine turtles, fish, seagrass, mangroves and plankton. ▶ QCCC working with graziers exploring risks and adaptation – important from the perspective of maintaining viable agricultural industry to continue to address WQ issues & avoiding perverse responses (risk matrix)

¹³ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

¹⁴ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

<u>Component of management</u>		
		<ul style="list-style-type: none"> ▶ Tourism operators: <ul style="list-style-type: none"> ○ All (QCCC & Tourism Queensland) workshopped risks and adaptation (outcomes document) ○ Marine operators (Great Barrier Reef Marine Park Authority) Marine Tourism Climate Change Action Group & Strategy
CO3 ..the broader (incl. global) risks /threats ¹⁵ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Key threats include increasing sea temperatures, sea level rise, ocean acidification, increasing storm intensity, and changes to freshwater inputs, currents and connectivity as detailed in Johnson and Marshall 2007, Vulnerability Assessment. ▶ Vulnerability Assessment ▶ Climate Change action plan
CO4 ..the regional/national level influences ¹⁶ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Vulnerability Assessment ▶ Climate Change Action Plan ▶ Enhancing resilience and promoting adaptation in the Great Barrier Reef Region are regional management strategies available for addressing climate change, for example, improving water quality and actively protecting refugia.
CO5 ..the international/global influences ¹⁷ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Recognition that this is a national/global challenge ▶ Vulnerability Assessment ▶ Climate Change Action Plan ▶ Mitigating greenhouse gas emissions is a key response to the climate change threat, however this is a national and global challenge and Great Barrier Reef Marine Park Authority can only act in an influencing and awareness-raising role.
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	4	<ul style="list-style-type: none"> ▶ Great Barrier Reef Marine Park Authority community surveys show strong level of awareness of climate change issues ▶ Vulnerability Assessment ▶ Climate Change Action Plan
PLANNING	Score	Justification
PL1....there is a planning system in place that effectively addresses.....(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Many plans in place or under development ▶ Currently few planning instruments incorporate climate change considerations. ▶ Many broad strategic documents but few are translated into specific planning instruments

¹⁵ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

¹⁶ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

¹⁷ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>		
		<p>(eg. Some local government and Natural Resource Management body planning documents).</p> <ul style="list-style-type: none"> ▶ Coastal Management Plans require climate change to be addressed (primarily from hazard risk perspective); regional plans will all incorporate climate change in future revisions (FNQ currently incorporating climate change). ▶ Environment Protection and Biodiversity Conservation Act doesn't tackle climate change issues at all (2 case law studies refer) ▶ Coastal Plans, regional plans starting to incorporate climate change, FNQ Regional Plan is a good example of incorporating climate change. ▶ Regional plans will inform local planning schemes ▶ Integrated Planning Act under review in terms of coastal dev unsure whether climate change is specifically incorp. ▶ State Planning Policy for climate change proposed as action in Climate Smart Adaptation ▶ State Planning Policy for hazards (flood, bushfire and landslide) with discussion of changing risks due to climate change ▶ Climate Smart Adaptation has measurable actions (milestones, responsible agency) still needs to be translated into specific on-ground actions (more concrete initiatives that specifically address climate change adaptation) ▶ Vulnerability Assessment ▶ Climate Change Action Plan ▶ Queensland Climate Change Strategy 2007
<p>PL2...the planning system for(insert mgt issue) addresses the major risks/threats to the Great Barrier Reef's values</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Planning to date only addresses CC by default in terms of protection of biodiversity and addressing threats that would impact on resilience ▶ Awaiting outcome of recent research (e.g. Keppel Bay) on how best to incorporate resilience strategies. Implementation will occur afterwards.
<p>PL3....the actions for implementation regarding.....(insert mgt issue) are clearly identified within the plan</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Action plan ok but updating of zoning plan and adaptive management plans for key sites needed. ▶ Where plans are in place, actions for implementation are clearly identified at a high level and are now being incorporated into annual work plans. ▶ Case studies are in development and the results will be incorporated. ▶ JB to send climate change adaptation framework ▶ Send state & fed action plans
<p>PL4....clear, measurable and appropriate objectives for management of(insert mgt issue) have been documented</p>	<p>2</p>	<ul style="list-style-type: none"> ▶ Objectives for on-ground management in response to CC not yet clearly identified ▶ Many objectives are at a high level. MERI framework currently in development both for actions and objectives.
<p>PL5....the main stakeholders &/or the local community are effectively engaged in planning to address(insert mgt issue)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Good engagement with science and tourism communities ▶ On Local Marine Advisory Committee agenda ▶ Reef Guardian Schools and Reef Guardian Councils re: education and outreach programs.

<u>Component of management</u>		
<p>PL6 .. <u>sufficient policy</u> currently exists to effectively address(insert mgt issue)</p>	3	<ul style="list-style-type: none"> ▶ Sponsoring a regional liaison officer to work with stakeholders ▶ Councils are doing a lot of work on climate change (cities for climate protection program; Natural Resource Management groups working with councils to incorporate climate change into planning) ▶ Broad policy in place but specific management policy lacking ▶ Outlook Forum
<p>PL7... there is consistency across jurisdictions when planning for(insert mgt issue)</p>	3	<ul style="list-style-type: none"> ▶ Broad co-ordination in place but specific plans and policies yet to be developed and consistently implemented ▶ Examples of local councils concerned about refusing development approvals then getting caught up in appeals processes and different decisions in Queensland government.
<u>INPUTS</u>	<u>Score</u>	<u>Justification</u>
<p>IN1 ...the current <u>financial resources</u> are <u>adequate</u> and prioritised to meet specific management objectives (refer PL4) to address(insert mgt issue)</p>	4	<ul style="list-style-type: none"> ▶ Significant resources being allocated through Great Barrier Reef Marine Park Authority, National, climate change adaptation framework =, reef rescue plan etc ▶ \$8.9m over 5 years (~5% of annual budget) = 11.5 FTE over 6 work units at Great Barrier Reef Marine Park Authority ▶ COAG National climate change Adaptation Framework has provided 5 years of financial support to minimise the impacts of climate change on the Great Barrier Reef and build resilience of the ecosystem, communities and industries. ▶ The \$200 million Reef Rescue Plan will also fund local actions to address degrading water quality, and this will contribute to the Great Barrier Reef's resilience to climate change. ▶ These resources will provide for case studies that will inform larger planning and adaptive management responses, and raise awareness about adaptation options for regional communities and reef-based industries. ▶ However, widespread implementation of adaptation measures can not be delivered under the current funding arrangements. ▶ Climate change Fund – primarily energy related projects ▶ Queensland Infrastructure assessment funding ▶ Widespread implementation of adaptation measures can not be delivered under the current funding arrangements.
<p>IN2...the current <u>financial resources</u> are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)</p>	4	<ul style="list-style-type: none"> ▶ As secure as can be expected ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing
<p>IN3...the current <u>human resources</u> within the managing organisations are <u>adequate</u> to meet specific management objectives (refer to PL4) to address(insert mgt issue)</p>	4	<ul style="list-style-type: none"> ▶ Significant resources being allocated ▶ Department of Climate Change (~25 staff) & QCCC (50 staff) show realignment of funding to focus on climate change ▶ Department of Climate Change will provide list QCCC projects ▶ Some Queensland agencies have dedicated climate change staff (Department of Premier

<u>Component of management</u>		
IN4... the current human resources within the managing organisations are secure (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	4	<p>and Cabinet, Environmental Protection Agency/Queensland Parks and Wildlife, Natural Resources and Water, Queensland Transport, Public Works, Department of Primary Industries and Fisheries)</p> <p>▶ As secure as can be expected</p>
IN5... the right skill sets and expertise are currently available to the managing organisations to address <i>(insert mgt issue)</i>	4	<p>▶ Expertise within Great Barrier Reef Marine Park Authority and State and cooperation with national and international research bodies</p> <p>▶ Great Barrier Reef Marine Park Authority is recognised nationally and internationally as a leader in climate change and tropical marine ecosystems.</p> <p>▶ Close collaboration with the United States (NOAA) and AIMS, CSIRO, etc</p> <p>▶ Queensland adaptation skills lacking, not specifically targeted and loss of staff to private enterprise</p> <p>▶ Driving adaptation policy for government new field and even internationally there is limited expertise</p> <p>▶ Strong government focus on energy management rather than adaptation</p>
IN6... the necessary biophysical information is currently available to address <i>(insert mgt issue)</i>	3	<p>▶ Vulnerability assessment</p> <p>▶ Regional projections and detailed information could be improved</p> <p>▶ Current understanding of the risks relating to climate change is available (see Vulnerability Assessment) but information to implement management tools is not always available.</p> <p>▶ Regional projections (in Great Barrier Reef) not at adequate resolution</p> <p>▶ Sea level rise mapping currently not adequate to meaningfully incorporate climate change into coastal planning</p> <p>▶ Impacts of sea level rise on coastal flooding currently being investigated to incorporate into coastal planning (Gold Coast only at this stage but may have broader applications)</p> <p>▶ Queensland regional projections not at adequate resolution</p> <p>▶ Limited information on fundamentals and vulnerability of coastal and terrestrial ecosystems to climate change, therefore difficult to identify adaptation options</p>
IN7 .. the necessary socio-economic information is currently available to address <i>(insert mgt issue)</i>	2	<p>▶ Socio-economic info lacking on implications of biophysical changes and flow-on effects between industries</p> <p>▶ Great Barrier Reef Marine Park Authority community segmentation project</p> <p>▶ Socio-economic info lacking on implications of biophysical changes and flow-on effects between industries (e.g. links between marine tourism and coastal businesses and community employment; loss of fisheries productivity has implications for coastal communities)</p> <p>▶ Vulnerability assessment (Chapter 23)</p> <p>▶ Research capability and how perceptions have changed over time</p> <p>▶ Recent research on social values is increasing but economic research is still lacking</p>

<u>Component of management</u>		
IN8... the necessary <u>traditional (Indigenous) knowledge</u> is currently available to address <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ High end of 2 ▶ Limited information and engagement ▶ Wuthathi Traditional use of marine resources agreement includes climate change provisions ▶ Limited engagement and transfer of knowledge in Queensland ▶ Requests for info on impact of sea level rise in Torres Strait and how they can adapt but information is lacking ▶ Using Traditional use of marine resources agreements as a tool to engage on climate change and how to build understanding of the impacts of climate change. ▶ Current availability of information is limited but significant work is underway to get that information. ▶ Engagement with Wuthathi on climate change integrated into the Wuthathi Traditional use of marine resources agreement Implementation Plan ▶ Upcoming climate change workshops on Wuthathi and Woppaburra countries to assist development of a Wuthathi and Woppaburra Traditional Owner Climate Change Action Plans for Sea Country ▶ Engagement with Raine Island Traditional Owners in determining the current knowledge of Raine Island and discussing potential management options ▶ JB to provide Torres Strait report
IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Bleachwatch, Reef Guardian Schools ▶ Tourist industry input ▶ WWF Report
<u>PROCESSES</u>	Score	Justification
PR1... the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Evidence of engagement with range of stakeholders ▶ Great Barrier Reef Marine Park Authority well engaged with tourism (marine tourism climate change action group), Natural Resource Management bodies, Reef Guardian Schools and Councils and fisheries. ▶ Dept of Defence engaging well with its stakeholders on climate change issues.
PR2... ..the <u>local community</u> is effectively engaged in the ongoing management of <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Evidence of engagement with range of stakeholders ▶ Great Barrier Reef Marine Park Authority taking on heavy responsibility as the focal point for all climate change matters in relation to the Great Barrier Reef and coast ▶ Community well engaged in “Bleachwatch” (over 6 years, 100+ participants). ▶ Great Barrier Reef Marine Park Authority initiating a facilitating role in terms of adaptation of industries and communities with the goal that it will be their ongoing responsibility. ▶ The broader community sometimes feels disempowered by the global nature of the problem.
PR3 ... there is a <u>sound governance</u> ¹⁸ <u>system in place</u> to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Department of Climate Change ▶ But no legislative base for governance

¹⁸ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

<p><u>Component of management</u></p>		
<p>PR4... there is effective performance monitoring to gauge progress towards the objective(s)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Early days ▶ Need clear plan actions items against which to assess progress ▶ There is more in development. There are lots of reporting mechanisms in place and most are effective ▶ Strategic Work Plan ▶ MERI framework being developed ▶ Finance tracking system ▶ Milestone MTSRF reporting ▶ Development of MS Project management system ▶ Knowledge Acquisition Strategy ▶ Research Information System
<p>PR5... appropriate training is available to the managing agencies to address(insert mgt issue)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Early days ▶ Need clear plan/actions items to determine training needs ▶ New targeted programs for marine park managers (e.g. Bleachwatch, Rapid assessment, businesses) ▶ BleachWatch integrated with Rapid Assessment Monitoring Protocol for Marine Park managers. ▶ Pilot – reef resilience assessment training – Keppel Islands.
<p>PR6... management of...(insert mgt issue) is consistently implemented across the relevant jurisdictions</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Early days ▶ Need clear plan actions items ▶ Complementing rather than duplicating existing work (Department of Climate Change's Adaptation Group are coming to Great Barrier Reef Marine Park Authority soon to incorporate work into national perspectives) ▶ Early days: Piloting programs at demonstration sites, such as Keppels. If pilot program is successful, lessons learned will inform implementation of adaptive management across relevant jurisdictions
<p>PR7 ... there are effective processes applied to resolve differing views/ conflicts regarding(insert mgt issue)</p>	<p>2</p>	<ul style="list-style-type: none"> ▶ Early days ▶ Need clear plan actions items ▶ Reef Advisory Committees, Association of Marine Park Tourism Operators, fishery workshops all of which have a feedback loop to bring information back to the Great Barrier Reef Marine Park Authority ▶ Public forums e.g. Garnault reports ▶ Higher end of 2 ▶ Vulnerability - consensus science ▶ Great Barrier Reef Marine Park Authority's Climate Change Group contribution to regional Great Barrier Reef Marine Park Authority offices, International Year of the Reef 2008, Local Marine Advisory Committees, Reef Advisory Committees and Association of Marine Park Tourism Operators regional tourism and fisheries workshops and presentations

Component of management		
PR8... <u>cumulative impacts</u> of activities associated with..... <i>(insert mgt issue)</i> are appropriately considered.	2	<ul style="list-style-type: none"> ▶ Early days ▶ Need clear plans and policies to guide decision making. There is little evidence of changed decision making. ▶ Evaluation of resilience indicators in the Keppels ▶ Raine Island climate change risk assessment process to consider species, groups, habitats vulnerability to cumulative impacts. ▶ Reef resilience atlas investment to forecast and inform management of cumulative impacts. ▶ get update on reef resilience atlas ▶ Vulnerability assessment
PR9.. the best available <u>biophysical research</u> and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	4	
PR10 .. the best available <u>socio-economic research and/or monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Yet to be addressed in planning and decision making ▶ Information just coming in now but yet to be applied. ▶ Social resilience atlas ▶ Reef Recollection research ▶ Shifting Baselines research ▶ Climate change motivations for behavioural change
PR11... the best available <u>traditional (Indigenous) knowledge</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Yet to be addressed in planning and decision making ▶ Engagement with Wuthathi on climate change integrated into the Wuthathi Traditional use of marine resources agreement Implementation Plan ▶ Upcoming climate change workshops on Wuthathi and Woppaburra countries to facilitate exchange of traditional and contemporary knowledge and incorporate into management plans: A Wuthathi and a Woppaburra Traditional Owner Climate Change Action Plan for Sea Country ▶ Engagement with Raine Island Traditional Owners in determining the current knowledge of Raine Island and discussing potential management options ▶ Reef recollections workshops and report
PR12... relevant <u>national standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ To the extent that national standards exist ▶ Thorough incorporation of National Standards in Risk Assessment in climate change strategic documentation. ▶ Queensland basing risk assessment on Australian Standard adapted by the Australian Greenhouse Office for climate change
PR13... relevant <u>international standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Great Barrier Reef Marine Park Authority establishing international best practice for climate change and coral reefs. ▶ To the extent that international standards exist

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
OUTPUTS		
OP1 ... to date, the actual management program (or activities) have progressed in accordance with the planned work program for (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Strategic work program reports Great Barrier Reef Climate Change Action Plan outcomes ▶ MERI framework being developed to further assess progress of Great Barrier Reef Climate Change Action Plan outcomes ▶ Department of Climate Change overarching direction – action plan – strategic work program (also working in conjunction with Environmental Protection Agency) ▶ Trimester reports ▶ Department of Climate Change reports ▶ Great Barrier Reef Marine Park Authority annual work plans Staff Performance Management Plans
OP2 .. implementation of management documents and/or programs relevant to..... (insert mgt issue) have progressed in accordance with timeframes specified in those documents	3	<ul style="list-style-type: none"> ▶ Too early for most results to be evidence. Some planning objectives are being achieved ▶ Great Barrier Reef Marine Park Authority annual work plans ▶ Development of Adaptation Framework ▶ Refinement of Coral Bleaching Response Plan ▶ Planning and management response to climate change in Keppel Bay
OP3... the results (in OP1 above) have achieved their stated management objectives	2	<ul style="list-style-type: none"> ▶ Queensland Climate Change strategy delivering on key actions (e.g. vegetation clearance controls) ▶ Establishment of Office of Climate Change and Review of Climate Smart Strategy ▶ Review of Climate Smart strategy ▶ Vulnerability Assessment ▶ Extensive documentation available
OP4... to date, products or services have been produced in accordance with the stated management objectives for (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Extensive documentation available ▶ Vulnerability Assessment ▶ Media and other publications
OP5... the knowledge base for (insert mgt issue) within agencies has increased over the last 3-5 years.	4	<ul style="list-style-type: none"> ▶ Difficult, long term issue, ▶ Largely outside management agency control
OP6.. the knowledge base for....(insert mgt issue) in the wider community has increased over the last 3-5 years.	4	<ul style="list-style-type: none"> ▶ Difficult, long term issue, ▶ Largely outside management agency control
OUTCOMES	Score	Comments
OC1 ... the relevant managing agencies are to date effectively addressing(insert mgt issue) and moving towards the attainment of the desired outcomes.	2	<ul style="list-style-type: none"> ▶ Difficult, long term issue, ▶ Largely outside management agency control
OC2... the outputs relating to (insert mgt issue) are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	2	<ul style="list-style-type: none"> ▶ Difficult, long term issue, ▶ Largely outside management agency control
OC3... the outputs (refer OP1 & 3) for.... (insert mgt issue) are reducing the major risks and the threats to the Great Barrier Reef	1	<ul style="list-style-type: none"> ▶ Reducing but to what extent ▶ Too early for most results to be evidence ▶ A lot of this is driving national policy changes to address climate change risks

Component of management		
OC4... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>environmentally sustainable</u>	1	<ul style="list-style-type: none"> ▶ Climate change will affect the environmental sustainability of the Great Barrier Reef. ▶ Uses of the reef do add to the impacts of climate change.
OC5... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>economically sustainable</u>	1	<ul style="list-style-type: none"> ▶ Climate change will affect the economic sustainability of the Great Barrier Reef. ▶ Uses of the reef do add to the impacts of climate change
OC6... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> has demonstrably enhanced <u>community understanding and/or enjoyment</u>	3	<ul style="list-style-type: none"> ▶ Climate change will affect the community understanding and/or enjoyment of the Great Barrier Reef. ▶ Uses of the reef do add to the impacts of climate change ▶ Understanding is higher than enjoyment (hence lower end of 3). ▶ Community awareness raising ▶ Councils and schools have been raising awareness
OC7 ... the relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Evidence of partnerships ▶ Successful partnership with the tourism industry to reduce their greenhouse gas emissions and build their adaptive capacity. ▶ High level of awareness regarding known vulnerabilities and impacts of climate change on the Great Barrier Reef in local communities and stakeholders. ▶ Initial engagement with fishing sector; ongoing work needed to develop strategic response to climate change.

COASTAL DEVELOPMENT SCORING SYSTEM

1 = Relevant but rarely true ~1-20% of optimum condition
 3 = Relevant and often true ~51-80% of optimum condition

2 = Relevant and sometimes true ~21-50% of optimum condition
 4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	Score	<u>Justification</u>
<u>CONTEXT</u>		
CO1 ...the values ¹⁹ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Understanding of values is variable, depends on the level of knowledge of individuals involved (e.g. officers making assessments under IDAS do not necessarily have the knowledge and skills)
CO2... the local risks/threats ²⁰ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	2	<ul style="list-style-type: none"> ▶ Reasonable knowledge of general impacts of coastal development as evidenced in background documentation but not necessarily recognised by all organisations and individuals involved in coastal development issues. ▶ Exit of sediment from development sites is seen as the major issue. ▶ Critical habitats in the Great Barrier Reef (Great Barrier Reef) catchment provide for marine ecosystem function directly through ecosystem connectivity, or support a healthy marine ecosystem by preventing sediments, nutrients and pollutants from being transported to the Great Barrier Reef. ▶ Coastal ecosystems are closely linked to terrestrial and freshwater ecosystems in the catchments, providing support to a variety of ecosystem functions, such as breeding and nursery areas, floodwater buffers and sediment and nutrient sinks. ▶ The complexity of coastal ecosystem function and the pressures from natural processes such as weather variations; wind, wave and tidal forces can be compounded by human influence on natural coastal processes. ▶ Changes in coastal processes can lead to change in shore position and profile, erosion, accretion and sedimentation, and changes in ecosystem composition and distribution. ▶ Alteration or inhibition of these natural processes will influence the rates of change of the shoreline and the biological composition of catchment, coastal and near shore ecosystems. ▶ Majority of issues on key pollution sources identified in the Productivity Commission Report on Industries, Land Use and Water Quality in the Great Barrier Reef Catchment. ▶ Legislative and planning tools available to manage these issues but application, compliance and enforcement at the local level is often problematic. ▶ Regional Issues identified in individual natural resource management and water quality improvement plans, local government plans and plans of State Development Areas.

¹⁹ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

²⁰ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

<p>Component of management</p>		
<p>CO2... the local risks/threats²¹ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers. (CONT.)</p>		<ul style="list-style-type: none"> ▶ Mining and industry generally have point source discharges which are regulated under a range of legislation mainly managed by the Environmental Protection Agency (Environmental Protection Agency). ▶ Mining in particular is exempt from a range of legislation and planning tools and competes strongly (especially in this boom) for human and natural resources ▶ The Department of Natural Resources and Water (NRW) administers the provision of land and water through the Land Act and Water Act respectively and thus its legislative tools are often used in mediation in land and water use conflicts ▶ The Department of Mines and Energy administers a range of legislation that manages a range of mining related resources and issues, including health and safety ▶ The Department of Infrastructure and Planning looks after key planning matters under several pieces of legislation, especially the Integrated Planning Act (Integrated Planning Act), and is responsible for a range of development assessment and planning legislation. ▶ The Department of Primary Industries and Fisheries manages coastal development impacts on marine wetlands and declared Fish Habitat Areas under the Fisheries Act. ▶ Given dwindling fisheries resources, aquaculture is being viewed as the only viable alternative for the provision of aquatic food supplies ▶ Community opinion on aquaculture in the past has been divided with respect to their support for the development of aquaculture facilities adjacent to the Great Barrier Reef Marine Park (and elsewhere) ▶ Impacts related to the discharge of aquaculture waste directly in to, and adjacent waterways that flow directly in to, the Great Barrier Reef Marine Park- discharge is managed and regulated by the Environmental Protection Agency ▶ Significant interest in Indigenous aquaculture ventures <p>Key drivers:</p> <ul style="list-style-type: none"> ▶ Seachange / Treachange / Fly in fly out (FIFO) workforce / Demographic change ▶ Ever increasing, expanding urban footprint / changed land use ▶ Sediment/stormwater runoff from urban areas and other localised water quality input issues ▶ Peri-urban/urban encroachment/pest invasion ▶ Balance between public and private interests / conflicting political agendas for environment protection and urban expansion at the local level. ▶ Mining boom is leading to increasing infrastructure including processing and transport facilities as well as feeding population growth and creating resource conflicts ▶ While small by comparison to agricultural inputs, sediment/stormwater and toxic material runoff from industrial and mining areas and other localised water quality input and extraction issues are important at the local level.

²¹ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

Component of management		
CO2... the local risks/threats ²² (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers. (CONT.)		<ul style="list-style-type: none"> ▶ Significant past land disturbance continues to feed erosion and pollution processes ▶ Many older industrial facilities have less stringent permit requirement than present laws require or the community expects ▶ Balance between public and private interests / conflicting political agendas for environment protection and mining and industrial expansion ▶ Aquaculture is currently a rapidly expanding primary industry in Australia-
CO3 ..the broader (incl. global) risks /threats ²³ relevant to(insert mgt issue) are understood by managers.	2	<ul style="list-style-type: none"> ▶ Climate Change impacts and response strategies especially not understood in sufficient detail ▶ Pressures from mining and heavy industry growing and will have impacts on Great Barrier Reef
CO4 ..the regional/national level influences ²⁴ relevant to(insert mgt issue) are understood by managers.	2	<ul style="list-style-type: none"> ▶ Local planning for major population growth in coastal areas adjacent to reef, but only one regional plan ▶ Adequate level of relevant knowledge of Great Barrier Reef impacts across all relevant levels of government and agencies not evident
CO5 ..the international/global influences ²⁵ relevant to(insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Understanding of global development pressures from resources boom and potential impact on values evident
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	4	<ul style="list-style-type: none"> ▶ Planning processes and documents show evidence of knowledge of relevant stakeholders
PLANNING	Score	Justification
PL1....there is a planning system in place that effectively addresses.....(insert mgt issue)	1	<ul style="list-style-type: none"> ▶ Environment Protection and Biodiversity Conservation Act guidelines are very broad for 'significance'. ▶ The only related national policy is for 'offsets'. ▶ National Oceans Policy provides broad national guidance. This led to the Coastal Catchment Initiative and associated guidelines. ▶ Queensland Coastal Plan does not list the Great Barrier Reef as a matter of state significance and only 3 of 9 regional coastal plans have been completed ▶ Planning systems are in place but they do not effectively address coastal development issues relevant to Great Barrier Reef.

²² Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

²³ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

²⁴ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

²⁵ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>		
		<ul style="list-style-type: none"> ▶ Many Local Government Statutory Plans have not been approved because they fail to incorporate state interests (as required by the state coastal plan) while development decisions continue to be made ▶ Planning and impact assessment regimes generally do not take into account secondary impacts (e.g. Nathan Dam original decision) ▶ The planning system does not ensure full cost-benefit analyses are conducted (e.g. ecosystem services generally not valued and there is a need to take account of externalities) ▶ Extraordinarily complex planning ▶ Limited capacity to deal with complex coastal development issues in some local authorities is a problem ▶ Local governments are not allowed under the Integrated Planning Act to simply prohibit a development type or use of land. The Integrated Planning Act aims to promote an outcome-orientated approach to planning and development. ▶ Environmental values are not reflected in desired outcomes and planning policies are not recognised by the planning and environment court. ▶ Under Integrated Planning Act if comments are not received (e.g. because of lack of capacity within agencies or more generally) within statutory timeframes then a proposal is deemed not to be an issue and hence approvals can go ahead. ▶ State Coastal Management Plan references World Heritage Area, but no policies went in explicitly to address World Heritage issues. There is a lack of recognition that planning processes may be occurring adjacent to a World Heritage Area.
<p>PL2...the <u>planning system</u> for (insert mgt issue) addresses the major risks/threats to the Great Barrier Reef's values</p>	<p>2</p>	<ul style="list-style-type: none"> ▶ State Coastal Management Plan provides a good overall framework for coastal development with risks identified. ▶ Queensland Coastal Plan does not list the Great Barrier Reef as a matter of state significance and only 3 of 9 regional coastal plans have been completed ▶ Where these threats and risks are acknowledged, they are often not directly addressed or mitigated (e.g. coastal wetlands and flood plain modification) ▶ Planning systems are in place but they do not effectively address coastal development issues relevant to Great Barrier Reef. ▶ There are significant issues that are not covered explicitly (e.g. drainage) ▶ Planning is all about benefits to the urban footprint; no across the board consideration ▶ Lack of balance in decisions based on supposedly ESD; no focus on environment or social ▶ Lack of vision for urban development; lack of priority for regional planning from a state perspective; inadequate resourcing and expertise for strategic planning ▶ Need for a vision for the whole Great Barrier Reef coastline; lack of interaction between state legislation and Environment Protection and Biodiversity Conservation Act (if state

<u>Component of management</u>		planning processes were accredited no need for Environment Protection and Biodiversity Conservation Act)
<p>PL3....the actions for implementation regarding.....(insert mgt issue) are clearly identified within the plan</p>	2	<p>State coastal plan is reasonable in identifying policies but these are not being translated into related actions at the local level and not clearly linked to other relevant plans and policies.</p> <p>There is a National Framework for Integrated Coastal Zone Management including implementation actions, however its objectives are extremely broad.</p>
<p>PL4.... clear, measurable and appropriate objectives for management of(insert mgt issue) have been documented</p>	2	<p>State coastal plan has clear objectives but not meaningful performance measures.</p> <p>Regional have clear objectives but these are not measurable plans</p> <p>There is a National framework for integrated coastal zone management including clear objectives but not meaningful performance measures.</p>
<p>PL5.....the main stakeholders &/or the local community are effectively engaged in planning to address(insert mgt issue)</p>	3	<p>Planning systems provide for engagement but some limitations noted below</p> <p>Yes, but not as well as in southeast Queensland</p> <p>Engagement on urban water quality management poor</p>
<p>PL6 .. sufficient policy currently exists to effectively address(insert mgt issue)</p>	2	<p>Key problem is lack of policy that sets vision and prescribes measures to achieve this</p> <p>Capacity to coordinate and implement policy is limited</p>
<p>PL7... there is consistency across jurisdictions when planning for(insert mgt issue)</p>	1	<p>Lack of consistency in coastal management for Queensland leads to a lack of implementation of policy or conflicting policy objectives and prescriptions.</p> <p>A large proportion of local government planning schemes were rejected for not addressing Queensland State Coastal Management Plan issues.</p> <p>Regional Coastal Management Plans are incomplete (only 3 of 9). In the absence of regional coastal plans, there is no balancing in other planning processes to ensure appropriate development. Ex. Recent Mission Beach decision under Environment Protection and Biodiversity Conservation Act. Commonwealth knocked it back whereas the Queensland planning documents indicated it would be ok. E.g. Warratah coal decision as well through Ramsar listed wetlands near Shoalwater Bay.</p> <p>Recent amalgamations have confused this and there is uncertainty about the status of existing plans</p> <p>There maybe a change in the process for how Regional Coastal Management Plans are done as part of a review of coastal planning systems.</p> <p>Under Integrated Planning Act, there is a move to make regional plans (e.g. FNQ2025) statutory rather than non statutory.</p> <p>Queensland have been delegating responsibilities to local government for some planning issues</p>

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
<p>INPUTS</p> <p>IN1 ...the current financial resources are adequate and prioritised to meet specific management objectives (refer PL4) to address(insert mgt issue)</p>	2	<ul style="list-style-type: none"> ▶ Currently only 3 of 9 Regional Coastal Management Plans have been financed and completed ▶ Planning progress is slow and implementation and monitoring is constrained. ▶ Performance based planning and management system requires more resources to implement and monitor effectively, (e.g. reviews of Integrated Planning Act and local govt concerns) ▶ Non-statutory planning is not resourced to its full potential (e.g. Regional Natural Resource Management planning, WQIP planning and implementation, coastal planning) ▶ The state coastal management plan is not well applied, and lacks a compliance loop to determine effectiveness of the Act and its associated plans ▶ Lack of dedicated resourcing especially at a local govt scale ▶ Compliance on development is inadequate to ensure effective environment protection ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains). ▶ Work demands growing without commensurate growth in resourcing.
<p>IN2... the current financial resources are secure (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)</p>	2	<ul style="list-style-type: none"> ▶ Limited staff in relation to water quality policy / planning / regulation implementation and monitoring & enforcement, ▶ Recent expansion of the Queensland Environmental Protection Agency Planning Division to assist Local Governments with the development of SEMP's. ▶ Staffing levels vary across councils and departments.
<p>IN3...the current human resources within the managing organisations are adequate to meet specific management objectives (refer to PL4) to address(insert mgt issue)</p>	2	<ul style="list-style-type: none"> ▶ Turnover of skilled staff is an issue ▶ Managing organisations are competing for well skilled staff with other highly paid sectors
<p>IN4...the current human resources within the managing organisations are secure (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)</p>	3	<ul style="list-style-type: none"> ▶ Need better appreciation of Great Barrier Reef values and impacts applied to planning tasks
<p>IN5... the right skill sets and expertise are currently available to the managing organisations to address(insert mgt issue)</p>	2	<ul style="list-style-type: none"> ▶ Good information is available (see biodiversity mgt issue) ▶ Information at local level for planning can be an issue
<p>IN6... the necessary biophysical information is currently available to address(insert mgt issue)</p>	3	<ul style="list-style-type: none"> ▶ General Socio-economic data for planning ok ▶ Impacts of coastal development on long term socioeconomic conditions lacking
<p>IN7 .. the necessary socio-economic information is currently available to address(insert mgt issue)</p>	3	<ul style="list-style-type: none"> ▶ Variable. Good knowledge where planning processes have engaged Traditional Owners to garner information but use in management of coastal development has been limited to date (e.g. Burdekin, Mackay/Whitsundays).
<p>IN8... the necessary traditional (Indigenous) knowledge is currently available to address(insert mgt issue)</p>	2	

<u>Component of management</u>		<u>Justification</u>
<u>PROCESSES</u>	<u>Score</u>	
IN9... there are additional sources of non-government input (e.g. volunteers) contributing to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Not comprehensively engaged by planning processes ▶ Coastcare actions (e.g. rehabilitation, Creekwatch) for the last ~10 years. Coastal community networks in place in some areas. This has been limited by the funds available. Conservation Volunteers Association being used to assist councils.
PR1...the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Issue of political vs technical input at local level. ▶ Lack of comprehensive engagement through planning processes.
PR2.... ..the local community is effectively engaged in the ongoing management of (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Often focussed on town planning rather than wider issues. ▶ Lack of comprehensive engagement through planning processes. ▶ Not necessarily with a regional perspective.
PR3 ... there is a sound governance ²⁶ system in place to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Widespread concern over Integrated Planning Act as governance structure for planning State Coastal Protection Advisory Committee was established to provide advice to Environmental Protection Agency as state coastal plans were developed but seems to have had limited influence.
PR4... there is effective performance monitoring to gauge progress towards the objective(s)	2	<ul style="list-style-type: none"> ▶ Compliance monitoring and enforcement deficient. ▶ Minimal compliance with plans. ▶ Minimal resources for compliance activities. ▶ Cost of compliance considered prohibitive.
PR5... appropriate training is available to the managing agencies to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ General planning training ok but problems with staff turnover.
PR6... management of....(insert mgt issue) is consistently implemented across the relevant jurisdictions	2	<ul style="list-style-type: none"> ▶ Many jurisdictions involved, inconsistencies in development and implementation of plans. ▶ Inconsistency in the decisions being made by the Planning and Environment Court. ▶ Fines for non-compliance are inadequate to act as a deterrent for non-compliance. ▶ Assessment of projects of State Significance under the State Development and Public Works Organisations Act all over-ride current Local Government plans and therefore expressed community desires for future development in their area (e.g. Greenfield housing estates, office blocks or ports and shipping facilities). ▶ Lack of consistent application of planning by all levels of government. ▶ Confusion in delegation from one level of government to another.
PR7... there are effective processes applied to resolve differing views/ conflicts regarding(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Many avenues available (e.g. Planning & Environment Court) but community satisfaction is low. ▶ Environment Protection and Biodiversity Conservation Act appeal mechanisms are not

²⁶ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

<u>Component of management</u>		
		<p>often used and less accessible following recent legislative amendments.</p> <ul style="list-style-type: none"> ▶ High costs on both sides. ▶ Community planning dispute resolution is not well utilised in the Great Barrier Reef coastal region. ▶ A major weakness of Integrated Planning Act is that it has shifted the onus of proof to demonstrate ecologically sustainable development from the proponent to the approving agency (especially applicable to Local Governments).
PR8... <u>cumulative impacts</u> of activities associated with..... <i>(insert mgt issue)</i> are appropriately considered.	1	<ul style="list-style-type: none"> ▶ Major problem. ▶ Lack of plans. ▶ Lack of tools/provisions to consider cumulative impacts.
PR9.. the best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Requirements through Environmental Impact Statement provisions but not always applied in decision making.
PR10 .. the best available <u>socio-economic</u> research and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Good general socio-economic information available. ▶ Provided through project proposals and Environmental Impact Statement provisions. ▶ May not consider longer term socio-economic impacts of development.
PR11 ... the best available <u>traditional (Indigenous) knowledge</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Some legislative requirements
PR12... <u>relevant national standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ National Strategy for ESD. ▶ Coastal Zone Inquiry 1992 with recommendations for coastal management. ▶ National Integrated coastal zone management framework. ▶ Precautionary principle as per Environment Protection and Biodiversity Conservation Act
PR13... <u>relevant international standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ World Heritage Convention/Great Barrier Reef listing & Environment Protection and Biodiversity Conservation Act trigger for national environmental significance (refer national guidelines on significance levels) ▶ Agenda 21 Local Govt standard ▶ World Heritage decision re: Airlie Beach

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
OUTPUTS		
OP1... to date, the actual management program (or activities) have progressed in accordance with the <u>planned work program</u> for <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ State Coastal Protection Act provides for regional plans but only 3 of 9 have been produced in the Great Barrier Reef catchment over 13 years. ▶ State and Local Government planning for the coast generally takes significantly longer than originally anticipated (e.g. current status of approved Local Government statutory plans). ▶ Regional plans not developed.
OP2 .. implementation of management documents and/or programs relevant to..... <i>(insert mgt issue)</i> have progressed in accordance with <u>timeframes</u> specified in those documents	2	<ul style="list-style-type: none"> ▶ Plans and reports prepared, but not effective in terms of integrated coastal development. ▶ Regional plans not developed.
OP3... the results (in OP1 above) have achieved their stated management objectives	2	<ul style="list-style-type: none"> ▶ Regional plans not developed.
OP4... to date, products or services have been produced in accordance with the stated management objectives for <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ General improvement in biophysical and socio-economic data, knowledge of impacts etc. ▶ Wetland database.
OP5... the knowledge base for <i>(insert mgt issue)</i> within <u>agencies</u> has increased over the last 3-5 years.	3	<ul style="list-style-type: none"> ▶ General improvement in biophysical and socio-economic data, knowledge of impacts etc.
OP6.. the knowledge base for.... <i>(insert mgt issue)</i> in the wider <u>community</u> has increased over the last 3-5 years.	3	<ul style="list-style-type: none"> ▶ Despite progress in protecting some coastal regions the overall lack of plans and implementation is problematic. ▶ Desired outcomes are not clearly articulated (e.g. the Commonwealth does not have a desired outcome for the Great Barrier Reef coast). ▶ Multiple levels of plans, when applied, can have conflicting objectives and outcomes. ▶ Where outcomes are articulated (e.g. the State Coastal Management Plans), progress has been mixed. ▶ Coastal plans have effectively protected many key habitats and areas contiguous with the Great Barrier Reef, but gaps exist and even where there are plans (e.g. known planning failures include: Earl Hill; Ella Bay (sleeper development); Muddy Bay Whitsundays; and False Cape). ▶ Continue to intensify development in risk-prone areas with Local Governments currently unable to minimise risk. ▶ Fragmented management of coastal issues in the Great Barrier Reef catchment.
OUTCOMES		
OC1...the relevant managing agencies are to date effectively addressing <i>(insert mgt issue)</i> and moving towards the attainment of the desired <u>outcomes</u> .	2	<ul style="list-style-type: none"> ▶ Despite progress in protecting some coastal regions the overall lack of plans and implementation is problematic. ▶ Desired outcomes are not clearly articulated (e.g. the Commonwealth does not have a desired outcome for the Great Barrier Reef coast). ▶ Multiple levels of plans, when applied, can have conflicting objectives and outcomes. ▶ Where outcomes are articulated (e.g. the State Coastal Management Plans), progress has been mixed. ▶ Coastal plans have effectively protected many key habitats and areas contiguous with the Great Barrier Reef, but gaps exist and even where there are plans (e.g. known planning failures include: Earl Hill; Ella Bay (sleeper development); Muddy Bay Whitsundays; and False Cape). ▶ Continue to intensify development in risk-prone areas with Local Governments currently unable to minimise risk. ▶ Fragmented management of coastal issues in the Great Barrier Reef catchment.

<u>Component of management</u>		
<p>OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the <u>Great Barrier Reef are protected</u> (refer CO1)</p>	2	<ul style="list-style-type: none"> ▶ Conflict between the current State Government policy of encouraging population growth but pushing it north. ▶ Population in the Great Barrier Reef catchment is increasing rapidly without consideration of how they will use the marine park. ▶ Despite progress in protecting some coastal regions the overall lack of plan and implementation is problematic . ▶ Good examples of progress include: the Queensland Fishway Program, Halifax Bay wetlands. Halifax Bay wetlands were identified as a key coastal site and subsequently protected by the State as a national park. ▶ There is no plan for the size and location of commercial ports or public marinas. ▶ There is a range of existing sleeper coastal development approvals currently in place but are yet to be activated that may lead to further degradation of the Great Barrier Reef coastal zone. ▶ Current planning and assessment processes have not achieved ESD.
<p>OC3... the outputs (refer OP1 & 3) for <i>(insert mgt issue)</i> are reducing the major risks and the threats to the Great Barrier Reef</p>	1	<ul style="list-style-type: none"> ▶ Limited positive outcomes. ▶ Lack of effective planning leading to inappropriate coastal developments, which is increasing risks.
<p>OC4... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> is demonstrably environmentally sustainable</p>	1	<ul style="list-style-type: none"> ▶ Limited positive outcomes. ▶ Lack of effective planning leading to inappropriate coastal developments, which is increasing risks.
<p>OC5... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> is demonstrably economically sustainable</p>	3	<ul style="list-style-type: none"> ▶ Developers are making money. ▶ Local councils are expanding. ▶ History of failed developments as well over time e.g. resorts. Questionable net benefits to communities. ▶ *score is based on lack of planning documentation to indicate anything but economic sustainability in the short term. ▶ Insurance companies becoming hesitant in areas likely to be severely impacted by climate change. ▶ Check Climate Change Vulnerability Assessment
<p>OC6... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> has demonstrably enhanced community understanding and/or enjoyment</p>	3	<ul style="list-style-type: none"> ▶ Increased numbers of users but some concern over quality of experience, condition of resources etc as expressed in Outlook Forum.
<p>OC7 ... the relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address <i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Some positive examples but key partnerships with industry/ development not effective.

DEFENCE**SCORING SYSTEM**

N/A means not applicable

Where there is a '?', it means they are unsure if it should go up to the next score

1 = Relevant but rarely true ~1-20% of optimum condition

2 = Relevant and sometimes true ~21-50% of optimum condition

3 = Relevant and often true ~51-80% of optimum condition

4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
<u>CONTEXT</u>		
CO1 ...the values ²⁷ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Strategic environmental assessment documents values of Great Barrier Reef and adjacent areas ▶ Management agreement ▶ Defence capability is understood by those in Great Barrier Reef Marine Park Authority involving in managing Defence.
CO2... the local risks/threats ²⁸ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Planning and documentation reflect understanding of threats (e.g Strategic Environmental Assessment documents risks from defence activities) ▶ Risk assessment undertaken (see Great Barrier Reef Marine Park Authority defence website)
CO3 ..the broader (incl. global) risks /threats ²⁹ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Climate Change- Defence have done a lot with clear targets and initiatives
CO4 ..the regional/national level influences ³⁰ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ ADF contribution to regional surveillance and interdiction limits risk of introduction of marine pests and diseases, and illegal and unregulated fishing in the Great Barrier Reef Marine Park
CO5 ..the international/global influences ³¹ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Hydrographic survey of shipping routes ▶ Australian Defence Force surveillance and interdiction activities
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	4	<ul style="list-style-type: none"> ▶ Management agreement

²⁷ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

²⁸ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

²⁹ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

³⁰ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

³¹ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>	Score	<u>Justification</u>
PLANNING		
PL1....there is a <u>planning system in place that effectively addresses</u> <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Strategic Environmental Assessment and Management Agreement set out approach ▶ Zoning plan regulates defence activities ▶ Defence Environment Policy
PL2...the <u>planning system</u> for <i>(insert mgt issue)</i> addresses the major risks/threats to the Great Barrier Reef's values	4	<ul style="list-style-type: none"> ▶ Strategic Environmental Assessment and Management Agreement set out approach ▶ Zoning plan regulates defence activities ▶ Defence Environment Policy
PL3....the actions for implementation regarding <i>(insert mgt issue)</i> are <u>clearly identified within the plan</u>	4	<ul style="list-style-type: none"> ▶ Strategic Environmental Assessment and Management Agreement set out approach ▶ Zoning plan regulates defence activities ▶ Defence Environment Policy
PL4.... <u>clear, measurable and appropriate objectives</u> for management of <i>(insert mgt issue)</i> have been documented	4	<ul style="list-style-type: none"> ▶ Strategic Environmental Assessment and Management Agreement set out approach ▶ Zoning plan regulates defence activities ▶ Defence Environment Policy
PL5....the main stakeholders &/or the local community are <u>effectively engaged</u> in planning to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Regular meetings between Defence and Great Barrier Reef Marine Park officials ▶ Management Agreement
PL6 .. <u>sufficient policy</u> currently exists to effectively address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Defence Environment Policy ▶ Management agreement
PL7... there is <u>consistency across jurisdictions</u> when planning for <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Defence work closely with Commonwealth and State including Department of the Environment, Water, Heritage and the Arts, Great Barrier Reef Marine Park Authority, Environmental Protection Agency, Queensland Parks and Wildlife
INPUTS		
IN1 ...the current <u>financial resources</u> are <u>adequate</u> and prioritised to meet specific management objectives (refer PL4) to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Defence Public Environment Report documents resources devoted to environmental management generally
IN2...the current <u>financial resources</u> are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ As secure as possible ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing

<p>Component of management</p> <p>IN3...the current <u>human resources</u> within the managing organisations are <u>adequate</u> to meet specific management objectives (refer to PL4) to address<i>(insert mgt issue)</i></p>	<p>4</p>	<ul style="list-style-type: none"> ▶ Great Barrier Reef Marine Park Authority input approx. 1FTE/annum (policy, consultation/planning) ▶ Secondments/staff interchange between Defence/Great Barrier Reef Marine Park Authority – (3 in last 4 years) ▶ Environment Management of Defence – Australia-wide eg Policy (2), Range Staff (3), environ officers (6), ADF (4) – (approx. 6-10 FTE direct) ▶ Patrols – Defence/DDM – especially with training area closures ▶ As secure as possible
<p>IN4...the current <u>human resources</u> within the managing organisations are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address<i>(insert mgt issue)</i></p>	<p>4</p>	<ul style="list-style-type: none"> ▶ Systematic approach ▶ Defence Heritage Toolkit
<p>IN5... the right skill sets and expertise are currently available to the managing organisations to address<i>(insert mgt issue)</i></p>	<p>4</p>	<ul style="list-style-type: none"> ▶ Adequate biophysical information is available (see Strategic Environmental Assessment) ▶ RAN hydrographic survey activities improve knowledge of benthic habitats and ocean conditions currents and tidal streams which informs park management. ▶ RAN vessels report weather and ocean observations routinely.
<p>IN7 .. the necessary <u>socio-economic information</u> is currently available to address<i>(insert mgt issue)</i></p>	<p>N/A</p>	
<p>IN8... the necessary traditional (Indigenous) <u>knowledge</u> is currently available to address<i>(insert mgt issue)</i></p>	<p>3</p>	<ul style="list-style-type: none"> ▶
<p>IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address<i>(insert mgt issue)</i></p>	<p>N/A</p>	
<p>PROCESSES</p> <p>PR1 ...the main stakeholders &/or industry(ies) are <u>effectively engaged</u> in the ongoing management of<i>(insert mgt issue)</i></p>	<p>Score</p> <p>4</p>	<p>Justification</p> <ul style="list-style-type: none"> ▶ Annual Great Barrier Reef Marine Park/Defence meetings ▶ Planning for specific exercises is extensive

<u>Component of management</u>		
PR2... ..the local community is effectively engaged in the ongoing management of <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Stakeholders effectively engaged through Defence Environmental Advisory Committees ▶ See http://www.defence.gov.au/Capability/ctc/Community_Consultation.asp
PR3 ... there is a sound governance ³² system in place to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Good governance with legal systems, integration across government, strategic meetings, and effective education – eg website, Public Environment Report documents, media
PR4... there is effective performance monitoring to gauge progress towards the objective(s)	4	<ul style="list-style-type: none"> ▶ Good performance monitoring for big exercises. ▶ Good management agreement but need for KPIs. ▶ Cumulative impacts monitoring not comprehensive but some eg seagrass, water quality inputs to Great Barrier Reef
PR5... appropriate training is available to the managing agencies to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Defence do induction training/DVD's/awareness cards for users ▶ Defence do briefings eg clearance divers on marine wildlife ▶ CO's guide to the environment ▶ Coast watch manual includes resources on the Great Barrier Reef Marine Park
PR6... management of... <i>(insert mgt issue)</i> is consistently implemented across the relevant jurisdictions	4	<ul style="list-style-type: none"> ▶ Yes- commonwealth and state and local- good communication
PR7 ... there are effective processes applied to resolve differing views/ conflicts regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Annual Defence meeting with Great Barrier Reef Marine Park Authority and Management Arrangement with specific process for dispute resolution. Public Environment Report process and stakeholder meetings.
PR8... cumulative impacts of activities associated with..... <i>(insert mgt issue)</i> are appropriately considered.	4	<ul style="list-style-type: none"> ▶ The SEA and risk assessment process deals with cumulative impacts
PR9.. the best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ See page 92 of SEA for biophysical information
PR10 .. the best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	N/A	<ul style="list-style-type: none"> ▶ See page 89 of SEA for socio-economic ▶ Also SOE report, risk assessment
PR11 .. the best available traditional (Indigenous) knowledge is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ National Heritage Management- see page 33 of SEA

³² Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

<u>Component of management</u>			
PR12... relevant national standards are identified and being met regarding (insert mgt issue)	4		<ul style="list-style-type: none"> ▶ Management agreement and Environmental assessment, post exercise monitoring ▶ Management agreement and Environmental assessment, post exercise monitoring
PR13... relevant international standards are identified and being met regarding (insert mgt issue)	4		<ul style="list-style-type: none"> ▶ Management agreement and Environmental assessment, post exercise monitoring
OUTPUTS	Score		Justification
OP1 ... to date, the actual management program (or activities) have progressed in accordance with the planned work program for (insert mgt issue)	4		<ul style="list-style-type: none"> ▶ Exercise planning , monitoring etc carried out as required ▶ Annual meeting with Great Barrier Reef Marine Park ▶ Post-exercise reporting conducted
OP2 .. implementation of management documents and/or programs relevant to..... (insert mgt issue) have progressed in accordance with timeframes specified in those documents	4		<ul style="list-style-type: none"> ▶ Examples of planning and implementation of environmental management associated with defence activities (e.g Exercise Talisman Saber 2007) documented in Post Exercise Report)
OP3... the results (in OP1 above) have achieved their stated management objectives	3		<ul style="list-style-type: none"> ▶ Examples of planning and implementation of environmental management associated with defence activities (e.g Exercise Talisman Saber 2007) documented in Post Exercise Report)
OP4... to date, products or services have been produced in accordance with the stated management objectives for (insert mgt issue)	4		<ul style="list-style-type: none"> ▶ Examples of implementation of environmental management associated with defence activities (e.g Exercise Talisman Saber 2007) documented in Post Exercise Report)
OP5... the knowledge base for (insert mgt issue) within agencies has increased over the last 3-5 years.	4		<ul style="list-style-type: none"> ▶ Strategic Environmental Assessment
OP6.. the knowledge base for....(insert mgt issue) in the wider community has increased over the last 3-5 years.	4		<ul style="list-style-type: none"> ▶ The knowledge bases has increased largely – website, proactive communication in media and meetings- training videos, annual environmental conference and participation in other conferences such as EIANZ, IAIA
OUTCOMES	Score		Justification
OC1...the relevant managing agencies are to date effectively addressing(insert mgt issue) and moving towards the attainment of the desired outcomes.	4		<ul style="list-style-type: none"> ▶ Defence has been able to train, Great Barrier Reef Marine Park has not been impacted. Some localised short term impacts but well managed. ▶ Good compliance and enforcement of Defence activities and all other users of 3 training areas. ▶ Royal Australian Navy Hydrographic survey programme to improve charting of the region.
OC2... the outputs relating to (insert mgt issue) are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	4		<ul style="list-style-type: none"> ▶ P 33 Strategic Environmental Assessment (SEA) and annual reporting associated with Environment Protection and Biodiversity Conservation Act
OC3... the outputs (refer OP1 & 3) for (insert mgt issue) are reducing the major risks and the threats to the Great Barrier Reef	4		<ul style="list-style-type: none"> ▶ Insufficient information ▶ P 33 SEA and annual reporting associated with Environment Protection and Biodiversity Conservation Act

<u>Component of management</u>		
OC4... use of the Great Barrier Reef relating to <u>....(insert mgt issue) is demonstrably environmentally sustainable</u>	4	<ul style="list-style-type: none"> ▶ Insufficient information ▶ P 33 SEA and annual reporting associated with Environment Protection and Biodiversity Conservation Act
OC5... use of the Great Barrier Reef relating to <u>....(insert mgt issue) is demonstrably economically sustainable</u>	N/A	<ul style="list-style-type: none"> ▶ Insufficient information ▶ P 33 SEA and annual reporting associated with Environment Protection and Biodiversity Conservation Act
OC6... use of the Great Barrier Reef relating to <u>....(insert mgt issue) has demonstrably enhanced community understanding and/or enjoyment</u>	N/A	<ul style="list-style-type: none"> ▶ Insufficient information ▶ P 33 SEA and annual reporting associated with Environment Protection and Biodiversity Conservation Act
OC7 ... the relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address <u>.... (insert mgt issue)</u>	4	<ul style="list-style-type: none"> ▶ Management agreement ▶ Community liaison processes

FISHING

SCORING SYSTEM

1 = Relevant but rarely true ~1-20% of optimum condition
 3 = Relevant and often true ~51-80% of optimum condition

2 = Relevant and sometimes true ~21-50% of optimum condition
 4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
CONTEXT CO1 ...the <u>values</u> ³³ in the Great Barrier Reef relevant to(<i>insert mgt activity/ issue</i>) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Managers have a good understanding of some values (mostly commercial retained catch information, biology & some stock distributions, \$ value of product, habitat values), a limited understanding of take for recreational fishing, and less understanding for take in other sectors such as charter and indigenous fisheries. Other points as detailed in ASD ▶ Limited understanding of social & economic values (most value = GVP for commercial sector – flow-on is poorly quantified. For recreational – descriptors inadequate plus key elements of the sector not being picked up in assessments e.g. mining & grey nomads) ▶ Multiple documents, DPI Reports etc ▶ Recognition of WH values and the intersections with Fisheries values is not clearly articulated in some fisheries management strategies and plans
CO2... the <u>local risks/threats</u> ³⁴ (ie within or adjacent to the Great Barrier Reef) associated with (<i>insert mgt issue</i>) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Reasonable understanding of the broader risks/threats to fishing and fishing operations (e.g. current economic status & issues). ▶ Very little information or understanding of local scale, cumulative or climate change risks – not yet factored into management arrangements (except limited scope with Coral & MAFF) ▶ Some understanding of quantity or fate of discarded catch but an increase in information is needed ▶ Ecological risk assessment (qualitative) for a number of fisheries operating in the Great Barrier Reef particularly data deficient fisheries e.g. harvest fisheries ▶ Limited independent data on SOCI interactions ▶ Very little information on population size, interaction rate or fate of protected species
CO3 ..the <u>broader (incl. global) risks /threats</u> ³⁵ relevant to(<i>insert mgt issue</i>) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Reasonable understanding of the immediate broader risks/threats to fishing and fishing operations (e.g. current economic status & issues) ▶ Potential effects of climate change on fishing less well understood – this is an emergent area, so management doesn't effectively document these factors nor deal with them yet.

³³ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

³⁴ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

³⁵ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

Component of management		
CO4 ..the regional/national level influences ³⁶ relevant to(insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Fishing is managed at a whole of Queensland level, not specific to Great Barrier Reef ▶ Regional influences on recreational fishing are partly understood eg. mining boom provides a driver for investments in boats and tackle. However, this is not well quantified. ▶ DPIF Prospects report – quarterly (fisheries component) – broad predictions on catches & market value; but there is no data on license market values ▶ Very poor linkage between NCP and conservation outcomes. Not currently used to fullest extent to address market failure to account for externalities. Ultimately could be a powerful driver for sensible triple-bottom line reform ▶ Again current management is mostly inflexible and poorly designed to deal with regional or national influences
CO5 ..the international/global influences ³⁷ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ World Heritage Area listing ▶ Fisheries are Export/WTO accredited ▶ Conservation of species: CITES, IPOA for sharks – increasing overlap and potential for more constructive synergies across different conventions (e.g. listing of sawfish; increasing links with FAO as more fish species listed under CITES) ▶ Impact on the Great Barrier Reef ecosystem of fishing migratory species (eg. some sharks and spp of conservation interest) in waters outside the Great Barrier Reef is not well understood ▶ Potential impacts from climate change and the current global economy crisis not well understood.
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	3	<ul style="list-style-type: none"> ▶ Extensive liaison systems in place including Management Advisory Committees and public/stakeholder consultation processes; commercial sectors are generally well represented and well understood ▶ Managers knowledge of rec and indigenous fishers is far less developed ▶ Still need to find more effective ways to remove barriers and engage effectively with vocal minority in the community
PLANNING	Score	Justification
PL1there is a planning system in place that effectively addresses.....(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ State based and Commonwealth arrangements for Commercial fishery ▶ Zoning plan ▶ Effective planning system for commercial sector at a Queensland-wide scale ▶ No effective planning system for recreationals, charter, indigenous ▶ Strategic planning for protected species management is lacking

³⁶ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

³⁷ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>		
<p>PL2...the <u>planning system</u> for <i>(insert mgt issue)</i> addresses the major risks/threats to the Great Barrier Reef's values</p>	3	<ul style="list-style-type: none"> ▶ Lack of overall strategic plan for fishing in the Great Barrier Reef: managing individual fisheries across Queensland rather than an overall industry. No recognition that management in a WHA requires a higher benchmark ▶ Although planning systems are not specifically framed around the Great Barrier Reef values, in most instances key threats are addressed– (Environment Protection and Biodiversity Conservation Act; Great Barrier Reef zoning) ▶ Some multispecies fisheries focus more on gear type and target species which makes it difficult to consider risks/threats to a single species, eg trawl ▶ Qualitative ecological risk assessments (ERAs) done for a number of Queensland fisheries ▶ Other points detailed in ASD ▶ Check re reef line fishery (if Herbivore related question) Planning system exists to address the threat of removing herbivores from coral reef habitats ▶ No capacity to address effort creep or cumulative impact in any fishery ▶ No planning for climate change in current fisheries management ▶ No capacity to address rec fishing, no licence system ▶ Currently, no effective planning for protected sp or strategic management reform ▶ Actions for fisheries management (commercial sectors) are clearly identified in legislation or management plans. ▶ Actions for management of the recreational (plus indigenous and charter) sector(s) are less well-articulated ▶ Actions are sometimes not explicit and inadequate
<p>PL3....the actions for implementation regarding <i>(insert mgt issue)</i> are clearly identified within the plan</p>	3	<ul style="list-style-type: none"> ▶ Performance management systems contain measurable fishery performance objectives; although not always specific to the Great Barrier Reef & there are some gaps (e.g. ecosystem objectives; bycatch, climate change issues) ▶ Objectives for commercial fishery are generally known, but are they measurable? ▶ Objectives for management of recreational fishing are not documented. ▶ Performance Management Systems are in their infancy and are yet to be implemented in many fisheries. Existing ones are not adequately measuring real performance (settings for triggers are generally coarse and responses are limited) ▶ Often strategic vision is not agreed or articulated
<p>PL4.... <u>clear, measurable and appropriate objectives</u> for management of <i>(insert mgt issue)</i> have been documented</p>	3	<ul style="list-style-type: none"> ▶ Department of Primary Industries and Fisheries Management Advisory Committees try to bring all parties to the table – however it is acknowledged that some sectors are not well represented due to lack of capacity to engage (Non-Governmental Organisations, indigenous) ▶ Have reasonable processes in place for consultation: Inter Departmental Committees, Department of Primary Industries and Fisheries Management Advisory Committees, FReef Advisory Committees ▶ FReef Advisory Committee - A lot of engagement generally at a high level (good sectoral representation) but is there genuine collaboration/co-management
<p>PL5.....the main stakeholders &/or the local community are <u>effectively engaged</u> in planning to address <i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Department of Primary Industries and Fisheries Management Advisory Committees try to bring all parties to the table – however it is acknowledged that some sectors are not well represented due to lack of capacity to engage (Non-Governmental Organisations, indigenous) ▶ Have reasonable processes in place for consultation: Inter Departmental Committees, Department of Primary Industries and Fisheries Management Advisory Committees, FReef Advisory Committees ▶ FReef Advisory Committee - A lot of engagement generally at a high level (good sectoral representation) but is there genuine collaboration/co-management

<u>Component of management</u>		
<p>PL6 ... <u>sufficient policy</u> currently exists to effectively address<i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Recreational sector engagement remains problematic. ▶ Queensland manages fisheries on statewide basis. Local arrangements mainly temporal/spatial closures ▶ Legislative framework (Environment Protection and Biodiversity Conservation Act Environment Protection and Biodiversity Conservation Act, Queensland) – Marine Park legislation (Great Barrier Reef Marine Park, Queensland) comprehensive but generally not well integrated ▶ Changes to Queensland legislation takes time increasing focus on policy approach
<p>PL7 ... there is <u>consistency across jurisdictions</u> when planning for<i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ There is a lot of complementarity: e.g. Zoning ▶ Some tensions in what is trying to be achieved by various government agencies ▶ Could be more systematic, and cross-sectoral approach across all threats – fishing, Water Quality, Climate Change ▶ “Outlook” Report provides an opportunity to develop collaborative forward looking big-picture strategies across agencies to address ecosystem-based management effectively
<u>INPUTS</u>	<u>Score</u>	<u>Justification</u>
<p>IN1 ...the current <u>financial resources</u> are <u>adequate</u> and <u>prioritised</u> to meet specific management objectives (refer PL4) to address<i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Working across large number of fisheries stretches resources ▶ Resources are limited – particularly for stock and ecosystem-based assessments, fisheries independent validations and compliance ▶ Research funding generally grant dependent and redirection of resources is difficult
<p>IN2...the current <u>financial resources</u> are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address<i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Secure at low base only ▶ Grant dependent ▶ Pop'n growth and rec fishing growth will increase needs ▶ Unclear what drivers will emerge from current global financial crisis ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing
<p>IN3...the current <u>human resources</u> within the managing organisations are <u>adequate</u> to meet specific management objectives (refer to PL4) to address<i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Limited, especially for compliance monitoring, stock assessment management and research
<p>IN4...the current <u>human resources</u> within the managing organisations are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address<i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ As secure as can be expected

<u>Component of management</u>		
IN5... the right skill sets and expertise are currently available to the managing organisations to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Generally good skill sets and expertise in fisheries management and research bodies ▶ High turnover of staff in fisheries agencies a problem
IN6... the necessary biophysical information is currently available to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Extensive biophysical information is not available in all areas to address fisheries management in the Great Barrier Reef from agencies and researchers; challenge is to address known gaps within existing resources. ▶ The basis for assessment of stocks and ecological impacts has improved in recent years, largely as a result of Cooperative Research Centres and Marine and Tropical Science Research Facility programs. ▶ However, actual knowledge of stocks and funding for ongoing assessments is still very limited ▶ Environment Protection and Biodiversity Conservation Act fisheries assessment process has also been significant driver for achieving this ▶ Significant problems with amount, accuracy and availability of information to managers
IN7 .. the necessary socio-economic information is currently available to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Basic understanding of externalities of fishing (omm..., rec) re: resources boom, weather, fuel, exchange rate but not a complete picture. ▶ There is some information about socio-economic impacts of management (e.g. mpas) ▶ Some projects underway to collect this information (e.g. Marine and Tropical Sciences Research Facility program) ▶ Knowledge of recreational fishing is very data poor in comparison to the commercial sector. ▶ Flow on and multiplier effects are poorly understood and documented for all fishing sectors ▶ Recognition of values is critical, but currently inadequate
IN8... the necessary traditional (Indigenous) knowledge is currently available to address(insert mgt issue)	1	<ul style="list-style-type: none"> ▶ Acknowledge this is a complex and difficult area but, no evidence of considering of traditional knowledge in management issues ▶ Will need to address indigenous hunting and fishing issues as a package
IN9... there are additional sources of non-government input (e.g. volunteers) contributing to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Contribution via Freeef Advisory Committee, Non-Governmental Organisations Fishing organisations ▶ ReefCheck ▶ Can be difficult to get information, especially through logbooks ▶ CapReef is a rare and excellent e.g. of high quality data at a regional scale for recreational fishing.

<u>Component of management</u>	Score	Justification
<p>PROCESSES</p> <p>PR1 ...the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of(insert mgt issue)</p>	<p>4</p>	<ul style="list-style-type: none"> ▶ Every agency has consultation processes built in; embedded well within agencies' cultures ▶ Engagement: generally good in a consultation sense, (particularly for commercial sectors). However, less so in a collaborative co-management sense ▶ Diffuse nature of community means that it is difficult/challenging to consult with some sectors e.g. recreational; ▶ Lack of recreational licensing reduces engagement mechanisms and can result in increased political engagement ▶ High degree of public scrutiny in what government does. ▶ There are a range of engagement opportunities though the advisory committees (e.g. Inter Departmental Committees, Department of Primary Industries and Fisheries Management Advisory Committees, Local Marine Advisory Committees, Fisheries Reef Advisory Committee) and stakeholder meetings
<p>PR2... ..the local community is effectively engaged in the ongoing management of (insert mgt issue)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ For the most part – yes, such as when management changes are proposed (recent east coast inshore fin fish management arrangements) ▶ not so well for engagement to identify issues and develop forward looking management
<p>PR3 ... there is a sound governance³⁸ system in place to address(insert mgt issue)</p>	<p>4</p>	<ul style="list-style-type: none"> ▶ DDM Agreement & Offshore Constitutional Settlement ▶ Arrangement between levels of govt re fisheries management ▶ Great Barrier Reef Ministerial Council (though hasn't met for some time) ▶ Queensland Fisheries Act, Great Barrier Reef Marine Park Act, Environment Protection and Biodiversity Conservation Act ▶ Integration across agencies remains problematic
<p>PR4... there is effective performance monitoring to gauge progress towards the objective(s)</p>	<p>2</p>	<ul style="list-style-type: none"> ▶ Environment Protection and Biodiversity Conservation Act assessments, guidelines & accreditations WTO conditions ▶ Biological information collected from the Long-Term Monitoring Program (Department of Primary Industries and Fisheries) ▶ Tables 1 and 2 in assessment support documents for details ▶ Performance Management System approach is promising but early in implementation (refer tables); Note PMSs are Queensland-wide not Great Barrier Reef specific. ▶ Objectives poorly specified, monitoring limited to key species at State wide scales, early detection of small scale problems unlikely. Information gaps makes some measures questionable

³⁸ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

<u>Component of management</u>		
PR5... <u>appropriate training is available to the managing agencies to address(insert mgt issue)</u>	4	<ul style="list-style-type: none"> ▶ To extent needed ▶ Endangered Species Awareness Course (one off requirement for fishers to obtain licence)
PR6... <u>management of....(insert mgt issue) is consistently implemented across the relevant jurisdictions</u>	3	<ul style="list-style-type: none"> ▶ Environment Protection and Biodiversity Conservation Act provide guidelines for sustainable fishing ▶ There is a lot of complementarity for some aspects: e.g. State and Commonwealth Zoning. Reef line plan took account of zoning when developing management plan. Regulations are complementary. ▶ There are some tensions in what is trying to be achieved by various government agencies. Department of Primary Industries and Fisheries (economic development agency) Department of the Environment, Water, Heritage and the Arts/Environmental Protection Agency/Great Barrier Reef Marine Park Authority (Ecosystem Based Management agencies) means philosophy may be different. ▶ However no real account taken of World Heritage Area status by Department of Primary Industries and Fisheries – need to set a higher standard of operation in a World Heritage Area to achieve best practice fishing ▶ Not well integrated to deal with cumulative impact or regional issues
PR7... <u>there are effective processes applied to resolve differing views/ conflicts regarding(insert mgt issue)</u>	3	<ul style="list-style-type: none"> ▶ Great Barrier Reef Ministerial Council (but note that it hasn't met since 2005.) ▶ Reef Advisory Committee and Local Marine Advisory Committees lack any influence on management ▶ Planning processes provide some mechanisms
PR8... <u>cumulative impacts of activities associated with..... (insert mgt issue) are appropriately considered.</u>	2	<ul style="list-style-type: none"> ▶ Improving but understanding and quantifying land-based impacts such as coastal development as a limiting factor for fishing is inherently difficult. ▶ Tools to analyse cumulative impacts are poorly developed, Outlook could be a major catalyst to refocus attention ▶ Information is presented at advisory committees; used as background information for RIS; provided through stock assessment analysis; ▶ Information is usually compiled and applied in management regimes (status reports, Environment Protection and Biodiversity Conservation Act requirements, bioregions). ▶ Data synthesis: E.g. Alana Grech spatial risk assessment with GIS: seagrass, dugong sightings, effort in East Coast Inshore Finfish Fishery, strandings.
PR9.. <u>the best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding (insert mgt issue)</u>	2	<ul style="list-style-type: none"> ▶ Monitoring resources prioritised to improve management decisions ▶ Extensive research program, especially around commercial fisheries ▶ Marine and Tropical Sciences Research Facility, AIMS and CSIRO programs ▶ Vessel Monitoring System data ▶ Need better system of interactions between managers and researches to determine information needs for management

<u>Component of management</u>		
PR10 .. the best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Stock assessment information deficient ▶ Need better systems and mechanisms to incorporate local knowledge ▶ Commercial sector decisions by fisheries managers based on limited economic data available. ▶ Longer term social aspects not well addressed because of a lack of strategic vision. ▶ The best available information is variably applied, but some critical data areas actually 'not available' ie strategic scale and environmental economic value. ▶ Very limited information available ▶ No evidence of use
PR11 ... the best available traditional (Indigenous) knowledge is applied appropriately to make relevant management decisions regarding (insert mgt issue)	1	
PR12... relevant national standards are identified and being met regarding (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Environment Protection and Biodiversity Conservation Act Guidelines & assessments; ▶ DPIF Annual status reports: conditions on the Environment Protection and Biodiversity Conservation Act accreditation are being conditionally/integratively met. ▶ Environment Protection and Biodiversity Conservation Act Sustainable Fisheries Assessment Guidelines pick up international requirements in general terms ▶ Council of Australian Government (COAG) agreements: e.g. National Competition Policy changes to licensing regimes by Department of Primary Industries and Fisheries; ▶ Natural Resource Management Ministerial Council ▶ Good coverage/implementation and improvements in compliance with national/international standards ▶ National agreements on biosecurity ▶ National recovery plan standards may not be met.
PR13... relevant international standards are identified and being met regarding (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ CITES/Convention on Migratory Species convened in general terms by Environment Protection and Biodiversity Conservation Act sustainable fisheries assessments ▶ ESD principles being met in relation to some fisheries but not all ▶ Improved as a result of Representative Areas Program ▶ However no real account taken of World Heritage Area status by Department of Primary Industries and Fisheries– need to set a higher standard of operation in a WHA to achieve best practice fishing
OUTPUTS	Score	Justification
OP1 ... to date, the actual management program (or activities) have progressed in accordance with the planned work program for (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Management program focussed mostly on commercial sector. For this sector, management activities are planned and undertaken on a fishery-by-fishery basis. ▶ Planning frameworks are quite prescriptive which gives certainty but creates inflexibility ▶ Many management programs have progressed as detailed in ASD but some expectations and programs unrealistic in terms of resources available

<u>Component of management</u>		
OP2 .. implementation of management documents and/or programs relevant to..... <i>(insert mgt issue)</i> have progressed in accordance with <u>timeframes</u> specified in those documents	2	<ul style="list-style-type: none"> ▶ Takes a long time to get plans/policies/legislation in place. Once in place though, implementation does occur in accordance with stated timeframes. ▶ DPIF have to review all plans every 10 years; Performance management systems 3 month timetable for a 'response', which might just be a review to see what response is most appropriate. ▶ DDM Compliance work program - Patchy especially in remote areas e.g. north of Cooktown ▶ More work required on species vulnerable to overfishing, protected species interactions; bycatch. This is a challenge given existing resources & number of jobs to be done ▶ Refer to ASD Tables 1 and 2 commercial catch trends and CPUE ▶ Have not generally achieved economic objectives ▶ Cumulative, regional and climate change management objectives have not been established yet
OP3... the results (in OP1 above) have achieved their stated management objectives	2	<ul style="list-style-type: none"> ▶ Informing public about rules: zoning maps, GPS products, DPIF range of bag/size limit products: calendar in accordance with objectives ▶ FReef Advisory Committee: Annual reports, status reports, educational material, VMS, enforcement/compliance, data from logbooks. From an industry perspective the issues are not being addressed within timeframes relevant to industry. Often new management arrangements are not costed effectively into plans and hence the consequences of management are not fully recognised.
OP4... to date, products or services have been produced in accordance with the stated management objectives for <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Significantly – through research and monitoring; there are knowledge gaps which in many instances are being addressed ▶ Knowledge could be used more effectively
OP5... the knowledge base for <i>(insert mgt issue)</i> within agencies has increased over the last 3-5 years.	3	<ul style="list-style-type: none"> ▶ Great Barrier Reef Marine Park and Department of Primary Industries and Fisheries planning and extension programs ▶ Improved knowledge as a result of consultation for management changes ▶ Need to find better ways to disseminate information e.g. through fostering sectoral champions
OP6.. the knowledge base for.... <i>(insert mgt issue)</i> in the wider community has increased over the last 3-5 years.	3	
OUTCOMES	Score	Justification
OC1 ... the relevant managing agencies are to date effectively addressing ... <i>(insert mgt issue)</i> and moving towards the attainment of the desired <u>outcomes</u> .	2	<ul style="list-style-type: none"> ▶ Queensland fisheries meeting Environment Protection and Biodiversity Conservation Act approval conditions and progressing recommendations. ▶ However, for other sectors such as recreational fishing, the desired outcomes have not been described. Public expectations of the outcomes from fishing within the Great Barrier Reef Marine Park are similarly poorly documented. ▶ Need to align fisheries mgt more closely with RAP to achieve outcomes for Great Barrier Reef ▶ Measuring movement towards outcomes is generally hampered by a lack of monitoring

<u>Component of management</u>		
		<p>and information.</p> <ul style="list-style-type: none"> ▶ Management generally focussed on problem solving current issues and reforming structural arrangements within commercial fisheries. ▶ Considerable concern over some fisheries (e.g. East Coast Inshore Finfish Fishery) ▶ Physical habitat is well protected & mitigated most impacts from fishing. Major concern is about water quality & climate change. ▶ Ability to respond to external economic drivers e.g. climate change (plus environmental), fuel, exchange rates, is limited.
<p>OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the <u>Great Barrier Reef are protected</u> (refer CO1)</p>	2	<ul style="list-style-type: none"> ▶ Have mounting pressures (e.g. growing rec fishing use) and the challenges (cumulative effects) that brings to fisheries management ▶ Concern over rec fishery ▶ Concern remains about some species of significant conservation interest eg sharks and rays ▶ Significant data deficiencies makes assessment of many species population difficult
<p>OC3... the outputs (refer OP1 & 3) for <i>(insert mgt issue)</i> are <u>reducing the major risks</u> and the threats to the Great Barrier Reef</p>	3	<ul style="list-style-type: none"> ▶ Management systems are not adaptive enough to deal with the pace of change/pressure that is happening ▶ Compliance risk/statistics from Day-to-Day Management Coordination Unit. ▶ New research that investigates risks from fishing are being incorporated where appropriate (e.g. Pitcher et al. Great Barrier Reef seabed biodiversity report) ▶ The Great Barrier Reef has many species at risk from fishing ▶ Some fisheries have significantly reduced the major risks e.g. trawling, where as for other fisheries major risks still exist.
<p>OC4... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> is demonstrably <u>environmentally sustainable</u></p>	3	<ul style="list-style-type: none"> ▶ Commercial fisheries operating in the Great Barrier Reef are accredited against national sustainability guidelines. DPI&F report. However, this does not specifically address the WHA values ▶ Recreational fishing is poorly quantified and increasing trends are likely to pose a management challenge to ensure continued sustainability. ▶ Performance indicators developed/drafted for fisheries (although not Great Barrier Reef specific) ▶ Some knowledge gaps relating to sustainability of non-target species/components are being addressed (bycatch). A number of species, mostly now protected, have shown significant fishing-related population declines through time. ▶ Independent monitoring to assess environmental sustainability is limited ▶ Concerns remain about the scale of some impacts (localised unsustainable harvesting) and the issue of cumulative impacts
<p>OC5... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> is demonstrably <u>economically sustainable</u></p>	2	<ul style="list-style-type: none"> ▶ External market influences and costs of production are making some fisheries operating within the Great Barrier Reef unviable. Recreational fishing on the other hand is an important contributor to economic sustainability of regional communities. ▶ Little economic data is collected for fishing activities – especially the flow-on aspects for

<u>Component of management</u>		
<p>OC6... use of the Great Barrier Reef relating to ...<i>(insert mgt issue)</i> has demonstrably enhanced <u>community understanding and/or enjoyment</u></p>	<p>3</p>	<p>all sectors</p> <ul style="list-style-type: none"> ▶ Check Queensland Department of Primary Industries and Fisheries ▶ Fishing from all sectors is likely to have large, but unquantified socio/community benefits. Measures have yet to be developed for this. ▶ Fishers understanding of the Great Barrier Reef and enjoyment by fishers is enhanced by going fishing; while experiences of non fishers can be reduced in some areas by fishing impacts (e.g. bycatch, inshore strandings)
<p>OC7 ... the relevant managing agencies have developed <u>effective partnerships</u> with local communities and/or stakeholders to address <i>(insert mgt issue)</i></p>	<p>3</p>	<ul style="list-style-type: none"> ▶ All agencies conduct local and regional consultation. This can be somewhat fragmented at times. Partnerships involving local communities having a strong voice in management at a local level are rare. In part this is because management is undertaken at a State or Marine Park wide scale. ▶ Some management agencies do not have regional capacity to effectively deal with regional issues ▶ Fisheries Reef Advisory Committee, Local Marine Advisory Committees and Management Advisory Committees for contacts and consultation.

HERITAGE

SCORING SYSTEM

N/A means not applicable

1 = Relevant but rarely true ~1-20% of optimum condition

3 = Relevant and often true ~51-80% of optimum condition

2 = Relevant and sometimes true ~21-50% of optimum condition

4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	Score	Justification
<p>CONTEXT</p> <p>CO1 ...the values³⁹ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.</p>	4	<ul style="list-style-type: none"> ▶ Good understanding of values across biophysical, cultural, historic, social and economic domains ▶ WH listing ▶ National Heritage Listing ▶ Heritage strategy ▶ Lucas et al report ▶ The Great Barrier Reef was inscribed on the World Heritage List as a World Heritage Area in 1981, internationally recognised by the World Heritage Committee for its outstanding universal value. ▶ Examples of values exemplifying the four World Heritage criteria for which Great Barrier Reef was inscribed can be found on the web ▶ As the world's most extensive coral reef ecosystem, the Great Barrier Reef is unique in its size and hence is a significant global resource ▶ There are a range of heritage values in the Great Barrier Reef, comprising natural, historic and Indigenous heritage. ▶ There are significant social values to heritage associated with the Great Barrier Reef. ▶ Aboriginal and Torres Strait Islander people have relied on the reef and coastal seas for thousands of years for traditional resources and customary practices. Today, over 70 coastal Aboriginal and Torres Strait Islander groups maintain strong cultural relationships to areas within the Great Barrier Reef World Heritage Area. Important cultural sites and values exist on many islands and reefs in the Great Barrier Reef Region. ▶ It is unknown what the direct contribution to the Australian economy of heritage is within the Great Barrier Reef, but tourism (of which natural, historic and indigenous heritage is presented through) is valued at \$5.1 billion p.a. (source: Access Economics). ▶ There are approximately 300 <i>known</i> shipwrecks in the Great Barrier Reef which predate WWI. The total number of historic shipwrecks (i.e 75 years or more) within the Great Barrier Reef Region is estimated at around 1000 (not sighted).

³⁹ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

<u>Component of management</u>		
CO2... the local risks/threats ⁴⁰ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Risks identified in relation to natural heritage ▶ Broad understanding of risks in other domains ▶ Check re historic/Indigenous heritage ref heritage strategy
CO3 ..the broader (incl. global) risks /threats ⁴¹ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Climate Change Vulnerability assessment (Johnson and Marshall 2007)
CO4 ..the regional/national level influences ⁴² relevant to(insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Legislative context clear ▶ Management of the heritage in the Great Barrier Reef is complex and involves State (e.g. NCA Act, QLD Heritage Act) and Commonwealth legislation (e.g. Great Barrier Reef Marine Park Act and Environment Protection and Biodiversity Conservation Act, Historic Shipwrecks Act). ▶ The Great Barrier Reef was added to the National Heritage List in 2007
CO5 ..the international/global influences ⁴³ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ The Great Barrier Reef is the largest World Heritage Area on Earth and was inscribed for all four natural WH criteria ▶ ~ 99 per cent of the WHA is covered by the Great Barrier Reef Marine Park, but it also includes many islands, cays and intertidal areas protected by State (Queensland) legislation that are not part of the Commonwealth Marine Park.
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	4	<ul style="list-style-type: none"> ▶ Good understanding of specific stakeholders relevant to cultural and historic heritage, ▶ Stakeholders for natural and socio-economic aspects of heritage very broad and engaged through general planning and management processes
PLANNING	Score	Justification
PL1....there is a planning system in place that effectively addresses.....(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ 25 year SP ▶ Heritage strategy approved by Federal Environment Minister in early 2006 ▶ Covered by many pieces of Commonwealth and State legislation, international conventions etc but principally under Environment Protection and Biodiversity Conservation Act

⁴⁰ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

⁴¹ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

⁴² Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

⁴³ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>		
PL2...the <u>planning system</u> for(insert mgt issue) addresses the major risks/threats to the Great Barrier Reef's values	4	<ul style="list-style-type: none"> ▶ Primarily addressed by other mgt programs addressing specific natural, cultural and socio-economic values ▶ Historic shipwrecks specifically protected through zoning and entry controls ▶ Risks and threats will be more explicitly addressed in new Periodic reporting process for WH sites
PL3....the actions for implementation regarding.....(insert mgt issue) are clearly identified within the <u>plan</u>	4	<ul style="list-style-type: none"> ▶ Requirement to consider heritage values when assessing permit applications included in Great Barrier Reef Marine Park Authority regulations ▶ Identified in heritage strategy, corporate plan and other PoMs etc
PL4....Clear, measurable and appropriate objectives for management of(insert mgt issue) have been documented	3	<ul style="list-style-type: none"> ▶ Heritage strategy identifies actions but does not set timetable for implementation or indicate relative priorities. Includes provision for monitoring and reporting on implementation of strategy
PL5.....the main stakeholders &/or the local community are effectively engaged in planning to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Existing planning processes for engagement ▶ Effective participation in RAP program ▶ Indigenous Liaison Unit ▶ Local Marine Advisory Committees ▶ Well engaged for natural heritage. Not so well for cultural heritage aspects
PL6 .. <u>sufficient policy</u> currently exists to effectively address(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Heritage strategy ▶ Traditional use of marine resources agreements
PL7... there is <u>consistency across jurisdictions</u> when planning for(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Heritage strategy ▶ Emerald Agreement ▶ Planning and mgt arrangements between Queensland and Commonwealth
<u>INPUTS</u>	Score	Justification
IN1 ...the current financial resources are adequate and prioritised to meet specific management objectives (refer PL4) to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Good for natural heritage ▶ Very poor for historic and Indigenous Heritage ▶ Check in Townsville
IN2...the current financial resources are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ As secure as possible ▶ Variability ▶ Heritage funding is often project specific ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing
IN3...the current human resources within the managing organisations are adequate to meet specific management objectives (refer to PL4) to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Limited resources from all managing agencies (QLD, Great Barrier Reef Marine Park Authority, Department of the Environment, Water, Heritage and the Arts) are available to educate general public and users about the heritage aspects of the Great Barrier Reef. ▶ Resources are high for indirect management of heritage through planning, zoning, site

<u>Component of management</u>		
		<ul style="list-style-type: none"> ▶ plans, lease arrangements, permits etc. ▶ Limited expertise within the managing agencies on some aspects of heritage, e.g. built heritage management and indigenous heritage management
IN4... the current <u>human resources</u> within the managing organisations are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ As secure as can be ▶ Project specific
IN5... the <u>right skill sets</u> and expertise are currently available to the managing organisations to address <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Management agencies are improving skills in Indigenous heritage management – e.g. Indigenous Liaison Unit within Great Barrier Reef Marine Park Authority, Queensland Environmental Protection Agency Indigenous rangers ▶ Expert advice is also available on heritage matters through the Conservation, Heritage and Indigenous Partnerships Reef Advisory Committee (Creef Advisory Committee) ▶ Insert DDM advice today.
IN6... the necessary <u>biophysical information</u> is currently available to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Good for natural heritage ▶ ?historic heritage register? ▶ Check re Indigenous sites recording
IN7 .. the necessary <u>socio-economic information</u> is currently available to address <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Good for natural heritage ▶ Not so good for other heritage
IN8... the necessary <u>traditional (Indigenous) knowledge</u> is currently available to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Traditional use of marine resources agreements ▶ Indigenous Liaison ▶ Creef Advisory Committee
IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Indigenous communities provide significant input ▶ LIPS ▶ Historical societies
PROCESSES	Score	Justification
PR1... the main <u>stakeholders &/or industry(ies)</u> are <u>effectively engaged</u> in the ongoing management of <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Expert advice is provided on some heritage matters through the Conservation, Heritage and Indigenous Partnerships Reef Advisory Committee (Creef Advisory Committee) ▶ Formal advice is sought from the Australian Heritage Council for the over-arching Great Barrier Reef Marine Park heritage Strategy and heritage management plans. ▶ Industries (largely the tourism industry) are engaged in planning processes for heritage management throughout the Great Barrier Reef. ▶ Local communities are involved in heritage management generally through the Local Marine Advisory Committees (Local Marine Advisory Committees) and through planning processes for specific places. ▶ Lower engagement on Indigenous

Component of management		
PR2... ..the <u>local community is effectively engaged</u> in the ongoing management of <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ A wide range of engagement currently occurs with the Traditional Owner groups along the Great Barrier Reef coast. ▶ Traditional use of marine resources agreements have now been signed for four TO groups
PR3 ... there is a <u>sound governance⁴⁴ system in place to address</u> <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Native title provisions ▶ There are formal and informal processes in place for governing heritage management in the Great Barrier Reef. An example of a formal process is included in the Environment Protection and Biodiversity Conservation Act legislation and also must be included in heritage management plans. ▶ Developing examples such as GIRU and research on approaches through CRC Reef and RRRRC
PR4... there is <u>effective performance monitoring to gauge progress towards the objective(s)</u>	3	<ul style="list-style-type: none"> ▶ Heritage strategy includes provision for monitoring and evaluation ▶ Some examples of developing systems to assess progress towards objectives e.g GIRU ▶ Informal assessment of status of actions in Heritage Strategy undertaken in last 12 months but no formal evaluation
PR5... <u>appropriate training is available to the managing agencies to address</u> <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Limited training available to staff in DDM agencies ▶ Specified in Heritage strategy ▶ Some directed to Indigenous rangers ▶ Natural values better than historic/Indig ▶ Check Extent of implementation?
PR6... <u>management of....(insert mgt issue) is consistently implemented across the relevant jurisdictions</u>	3	<ul style="list-style-type: none"> ▶ Heritage strategy ▶ Traditional use of marine resources agreements ▶ Recent (Mar08) amendments of Queensland Heritage Act provides better alignment with Historic Shipwrecks Act for the protection of underwater cultural heritage
PR7... there are <u>effective processes applied to resolve differing views/ conflicts</u> regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ General Great Barrier Reef Marine Park Authority provisions for permit appeal ▶ Heritage strategy provides mechanism for conflict resolution ▶ Need to assess extent to which these processes meet needs of Indigenous communities?
PR8... <u>cumulative impacts of activities associated with..... (insert mgt issue)</u> are appropriately considered.	2	<ul style="list-style-type: none"> ▶ No evidence of addressing cumulative impacts on natural or Indigenous heritage ▶ Cross reference to cumulative impact in relation to biodiversity etc
PR9.. the best available <u>biophysical research and/or monitoring information is applied appropriately to make relevant management decisions</u> regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ The best available information on heritage management is applied to make management decisions when available. ▶ Permit assessments – regulation consideration ▶ Historic shipwreck permitting ▶ Cultural Heritage Management Plan development

⁴⁴ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

<u>Component of management</u>			
			<ul style="list-style-type: none"> ▶ Plan of Management development ▶ Heritage strategy implementation/review
PR10 .. the best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding (insert mgt issue)	2		<ul style="list-style-type: none"> ▶ Permit assessment requirements, Heritage strategy but limited consideration of socio-economic information (given that this is a general area of knowledge deficiency in Great Barrier Reef) ▶ Historic and Indigenous less well so
PR11... the best available traditional (Indigenous) knowledge is applied appropriately to make relevant management decisions regarding (insert mgt issue)	3		<ul style="list-style-type: none"> ▶ Indigenous Liaison Unit input ▶ Permit assessment requirements, ▶ Heritage strategy does consider this in some detail ▶ Need to check with Tos – is it being applied outside or within of Traditional use of marine resources agreements
PR12... relevant national standards are identified and being met regarding ... (insert mgt issue)	3		<ul style="list-style-type: none"> ▶ Application of Burra Charter and heritage regulations ▶ Limited implementation of Heritage Strategy
PR13... relevant international standards are identified and being met regarding (insert mgt issue)	4		<ul style="list-style-type: none"> ▶ Application of WH Guidelines and provisions
<u>OUTPUTS</u>	<u>Score</u>		<u>Justification</u>
OP1 ... to date, the actual management program (or activities) have progressed in accordance with the planned work program for (insert mgt issue)	3		<ul style="list-style-type: none"> ▶ Reef-wide strategy for managing heritage was completed within the specified time frame. ▶ Site management plans for locally important/listed sites are planned. ▶ Website updated within appropriate timeframes and additionally as required ▶ Lease arrangements on LEI are in place for those areas required. ▶ The implementations of management documents/programs for heritage have not progressed in accordance with timeframes specified with the exception of the Great Barrier Reef Marine Park Heritage Strategy. ▶ The draft Lady Elliot Island Heritage Management Plan and the Great Barrier Reef Marine Park Heritage strategy have been produced in accordance with the stated management objectives. Yet to be approved ▶ Management Plans have been produced by QM for 6 Great Barrier Reef Historic Shipwrecks: Yongala, Gothenburg, Tambaroora, Foam, Pandora , Llewellyn
OP2 .. implementation of management documents and/or programs relevant to..... (insert mgt issue) have progressed in accordance with timeframes specified in those documents	3		<ul style="list-style-type: none"> ▶ First Heritage Management Plan drafted (for Lady Elliot Island), approval process has protracted longer than planned. ▶ Moorings installed at Yongala Historic Shipwreck site to minimise impact of anchors and chain on wreck site in accordance with recommendations of SS Yongala Management Plan. Moorings owned and managed by Queensland Museum.
OP3... the results (in OP1 above) have achieved their stated management objectives	3		<ul style="list-style-type: none"> ▶ Where actions have been implemented they have generally achieved their stated management objective. But implementation limited

Component of management		
<p>OP4... to date, products or services have been produced in accordance with the stated management objectives for (insert mgt issue)</p>	3	<ul style="list-style-type: none"> ▶ Heritage Strategy ▶ Great Barrier Reef wide framework for Traditional use of marine resources agreements ▶ Lady Elliot Island Draft Mgt Plan ▶ Fact sheets eg ATSI people ▶ Many brochures eg Traditional use of marine resources agreement kit ▶ Reef Naming Strategy
<p>OP5... the knowledge base for (insert mgt issue) within agencies has increased over the last 3-5 years.</p>	4	<ul style="list-style-type: none"> ▶ Heritage Strategy draws available material together ▶ Further heritage information continues to be documented (by managing agencies, Traditional Owners or researchers). ▶ Reports of new Heritage listings in the Great Barrier Reef Marine Park have been released to the general community ▶ Story Place - a reference database that holds resources about Traditional Owner groups adjacent to the Great Barrier Reef. A useful resource for Aboriginal and Torres Strait Islanders, managers, researchers, students, stakeholders and other people interested in learning more about Traditional Owner connections with the Great Barrier Reef.
<p>OP6.. the knowledge base for.... (insert mgt issue) in the wider community has increased over the last 3-5 years.</p>	3	<ul style="list-style-type: none"> ▶ Story Place - a reference database that holds resources about Traditional Owner groups adjacent to the Great Barrier Reef. A useful resource for Aboriginal and Torres Strait Islanders, managers, researchers, students, stakeholders and other people interested in learning more about Traditional Owner connections with the Great Barrier Reef. ▶ A number of general community submissions were received on the draft Lady Elliot Island Heritage Management Plan during the public consultation period
OUTCOMES	Score	Justification
<p>OC1...the relevant managing agencies are to date effectively addressing(insert mgt issue) and moving towards the attainment of the desired outcomes.</p>	3	<ul style="list-style-type: none"> ▶ Heritage strategy
<p>OC2... the outputs relating to (insert mgt issue) are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)</p>	3	<ul style="list-style-type: none"> ▶ Many aspects of natural heritage in good condition overall but concern for current and potential degradation – largely assessed through other programs ▶ Monitoring of Heritage Strategy implementation will provide evidence in future ▶ Need to check in Townsville – is there evidence available of heritage condition
<p>OC3... the outputs (refer OP1 & 3) for.... (insert mgt issue) are reducing the major risks and the threats to the Great Barrier Reef</p>	4	<ul style="list-style-type: none"> ▶ The outputs (heritage management plan, heritage strategy, permits, site plans, plans of management, lease agreements) address all major risks, threats to the Great Barrier Reef to a limited degree. Plans of management control tourism access and use of the Great Barrier Reef, the Great Barrier Reef Marine Park Regulations (special management areas) can be used to protect heritage sites, permits and lease arrangements used to

<u>Component of management</u>		address recognised risks
OC4... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably environmentally sustainable	3	<ul style="list-style-type: none"> ▶ Natural values of heritage ok ▶ Indigenous less so
OC5... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>economically sustainable</u>	N/A	<ul style="list-style-type: none"> ▶ Economic sustainability not an objective for heritage management/not a goal in its own right.
OC6... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> has demonstrably enhanced community understanding and/or enjoyment	3	<ul style="list-style-type: none"> ▶ Traditional use of marine resources agreements ▶ Interpretation material on islands, Lightstations, historic shipwrecks (e.g. Yongala) ▶ Check in Townsville esp in relation to Indigenous Heritage
OC7... the relevant managing agencies have developed <u>effective partnerships</u> with local communities and/or stakeholders to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Heritage strategy ▶ Local Marine Advisory Committees ▶ CR Reef Advisory Committee

PORTS AND SHIPPING
SCORING SYSTEM

Not assessed means there was not enough information to make an assessment
 N/A means not applicable

- 1 = Relevant but rarely true ~1-20% of optimum condition
- 2 = Relevant and sometimes true ~21-50% of optimum condition
- 3 = Relevant and often true ~51-80% of optimum condition
- 4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
CONTEXT		
CO1 ...the values ⁴⁵ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Good system of navigation aids and communication. ▶ Port land use plans and EMPs recognise context.
CO2... the local risks/threats ⁴⁶ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Risks associated with Biofouling and containerised chemicals not fully appreciated ▶ Potential impacts of growth in shipping numbers, port expansion etc not evident in planning ▶ Individual port development projects incorporate consideration of threat to Great Barrier Reef values but not potential cumulative impacts ▶ Outlook Forum
CO3 ..the broader (incl. global) risks /threats ⁴⁷ relevant to(insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Biofouling and ballast water risks not fully appreciated.
CO4 ..the regional/national level influences ⁴⁸ relevant to(insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Context advice available from Ports Australia and shipping industry bodies. ▶ Pressures for expansion of ports.
CO5 ..the international/global influences ⁴⁹ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Increased ship size and other global trends recognised.
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	4	<ul style="list-style-type: none"> ▶ Annual meetings with key stakeholders.

⁴⁵ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

⁴⁶ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

⁴⁷ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

⁴⁸ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

⁴⁹ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>	Score	Justification
PLANNING		
PL1...there is a planning system in place that effectively addresses.....(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Many agencies engaged in risk based planning related to shipping. ▶ Good planning at individual port level. ▶ Limited strategic planning to deal with development of new ports and expansion of existing ports.
PL2...the planning system for(insert mgt issue) addresses the major risks/threats to the Great Barrier Reef's values	3	<ul style="list-style-type: none"> ▶ As above. ▶ Biofouling and containerised chemicals risks require particular attention.
PL3...the actions for implementation regarding.....(insert mgt issue) are clearly identified within the plan	3	<ul style="list-style-type: none"> ▶ Strategic planning for ports limited. ▶ Good implementation of 2001 Review recommendations
PL4....Clear, measurable and appropriate objectives for management of(insert mgt issue) have been documented	2	<ul style="list-style-type: none"> ▶ Lack of defined targets for shipping incidents, on-going monitoring and response. ▶ Good implementation of 2001 Review recommendations ▶ Lack of clear measurable targets for IMP (biofoul and ballast), containerised chemical risks, oil spills, vessel grounds and collisions.
PL5.....the main stakeholders &/or the local community are effectively engaged in planning to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Stakeholders and community engaged in specific Port Land Use Plans and some project Environmental Impact Statement processes. ▶ Lack of community involvement in wider port and shipping issues.
PL6 ..sufficient policy currently exists to effectively address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Lack of strategic planning and overall govt policy for ports. ▶ Lack of coordination and planning for vessel waste reception. ▶ Containerised chemical issue is also a likely candidate for mention as in need of policy/plan to address
PL7... there is consistency across jurisdictions when planning for(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Lack of coordination across Port Authorities. ▶ Inconsistencies in vessel discharge regulations.
INPUTS	Score	Justification
IN1 ...the current financial resources are adequate and prioritised to meet specific management objectives (refer PL4) to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Uncertainty about capacity to deal with expected growth in ports and shipping activity. ▶ Dedicated resources for pollution incident prevention and response. ▶ Monitoring for introduced pests expensive and not adequately defined, funded and implemented. ▶ Low end of 3 – reliance on the aggregation of combined Depts ▶ industry well resourced; management agencies limited and possibly inadequate given growth ▶ Individual agency very limited and reliant on good co-ordination

Component of management		
IN2...the current <u>financial resources</u> are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing ▶ Recent increases in shipping and port facilities not matched with increased resourcing
IN3...the current <u>human resources</u> within the managing organisations are <u>adequate</u> to meet specific management objectives (refer to PL4) to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Individual Port corporations have substantial resources and appropriately qualified staff. ▶ Resourcing for state wide strategic planning inadequate. ▶ Management agencies lack capacity to deal with growth in port proposals and existing business.
IN4...the current <u>human resources</u> within the managing organisations are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Staff turnover is a concern for both port corporations and management agencies. ▶ Recent increases in shipping and port facilities not matched with increased resourcing
IN5... the <u>right skill sets</u> and <u>expertise</u> are currently available to the managing organisations to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Port authorities have well qualified and experienced staff. ▶ Some expertise limitations in both industry and management agencies as a result of global expansion in shipping and port activities. ▶ Complexity and poor jurisdictional coordination poses challenges for leadership at wider government level. ▶ Oiled wildlife response capacity needs to be strengthened, especially in Environmental Protection Agency.
IN6... the necessary <u>biophysical information</u> is currently available to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Most projects subjected to impact assessment. ▶ Most ports have regular limited monitoring of port environment. ▶ Some hydrographic data not available. ▶ Ongoing issue of how to 'value' the environment. Especially for cost benefit (e.g. for pest incursion and footprint impacts. It is critical biophysical data that is not available.
IN7 .. the necessary <u>socio-economic information</u> is currently available to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Port authority annual reports document economic benefits. ▶ Some ports have Economic Impact statements clearly defining the socio-economic benefit of a port.
IN8... the necessary <u>traditional (Indigenous) knowledge</u> is currently available to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Environmental Impact Statement requirements. ▶ Ports review and document cultural heritage areas and impacts in consultation with Traditional Owners.
IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address <i>(insert mgt issue)</i>	N/A	<ul style="list-style-type: none"> ▶ Not applicable.

<u>Component of management</u>	Score	<u>Justification</u>
PROCESSES		
PR1...the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Peak bodies and working groups deal with issues. ▶ High level coordination of every-day activities, incident response, access to areas outside shipping lanes and management of cruise ship access to high use areas seems to be effective. ▶ MoU between QPA and Great Barrier Reef Marine Park Authority on environmental management involves regular consultative meetings.
PR2... the local community is effectively engaged in the ongoing management of (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Many ports have consultation or advisory groups, but question over the extent of effective engagement with the community – seems to be highly variable between ports.
PR3 ... there is a sound governance ⁵⁰ system in place to address(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Great Barrier Reef Marine Park Authority CEO sits on AMSA Board. ▶ Port authorities have CEOs and independent Boards.
PR4... there is effective performance monitoring to gauge progress towards the objective(s)	3	<ul style="list-style-type: none"> ▶ AMSA risk assessment every 6 months. ▶ Regular PA reports. ▶ Noting absence clear objectives, effective performance monitoring is not likely fully effective.
PR5... appropriate training is available to the managing agencies to address(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Extensive pollution incident response training. ▶ Introduced marine pests training coordination, monitoring and response is inadequate.
PR6... management of....(insert mgt issue) is consistently implemented across the relevant jurisdictions	3	<ul style="list-style-type: none"> ▶ Different approaches between ports. ▶ Shipping rules nationally uniform.
PR7 ... there are effective processes applied to resolve differing views/ conflicts regarding(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Annual meeting between Great Barrier Reef Marine Park Authority, ports and stakeholders. ▶ QT oversees port authorities. ▶ Reconsideration and Administrative Appeals Tribunal processes in place related to permit decisions.
PR8... cumulative impacts of activities associated with..... (insert mgt issue) are appropriately considered.	2	<ul style="list-style-type: none"> ▶ Cumulative or compounding impacts such as water quality, introduced pests and dredging impacts are not well addressed. ▶ Very little cumulative impact assessment formal or informal apart from shipping safety,

⁵⁰ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

Component of management		
PR9.. the best available <u>biophysical research</u> and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Lack of consistency in approach to EIA and management between ports and stakeholders within ports. ▶ Oil spill response atlas outdated. ▶ Coordination for introduced marine pests is in place but monitoring needs improvement and system has not delivered 'effective outputs'. ▶ Project specific information is well applied
PR10 .. the best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Commercial decisions by Ports based on good economic data. ▶ Longer term social aspects not well addressed because of lack overall ports strategy. ▶ The best available information is likely applied well, but some critical data area actually 'not available' ie strategic scale and environmental economic value.
PR11 ... the best available <u>traditional (Indigenous) knowledge</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Many ports have cultural values documented and assessed with input from Traditional Owners. ▶ Ports see accessing traditional knowledge as difficult and feel engagement in port decision-making is often not a high priority for Traditional Owners.
PR12... relevant national standards are identified and being met regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ National standards and port compliance coordinated by Ports Australia. ▶ Major port projects undergo Environment Protection and Biodiversity Conservation Act review.
PR13... relevant international standards are identified and being met regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ DDM and AMSA logs document compliance.
OUTPUTS	Score	Justification
OP1 ... to date, the actual management program (or activities) have <u>progressed</u> in accordance with the <u>planned work program</u> for <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Pollution response plans are well documented, resourced and reviewed. ▶ Few shipping incidents or reports of non-compliance. ▶ Low progress on IMP, containerised chemical risk and absence of KPI
OP2 .. implementation of management documents and/or programs relevant to..... <i>(insert mgt issue)</i> have progressed in accordance with <u>timeframes</u> specified in those documents	3	<ul style="list-style-type: none"> ▶ Strategic approach and attention to cumulative impacts limited. ▶ Action to address introduced marine pests is lagging.
OP3... the results (in OP1 above) have achieved their stated management objectives	Not assessed	<ul style="list-style-type: none"> ▶ Not assessed. ▶ Absence of clearly measurable objectives leads to focus on monitoring trends.
OP4... to date, products or services have been produced in accordance with the stated management objectives for <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Policies and guidelines on dredge spoil disposal. ▶ >6000 vessel transits in World heritage Area with fewer than 2 incidents per year. ▶ Good navigational safety and spill outputs, good existing port management ▶ IMP output not developed containerised chemical risk assessment not developed
OP5... the knowledge base for <i>(insert mgt issue)</i> within agencies has increased over the last 3-5 years.	3	<ul style="list-style-type: none"> ▶ Agency staff turnover and industry shortages result in loss of shipping and port expertise.

<u>Component of management</u>		
<u>OUTCOMES</u>	Score	Justification
OP6.. the knowledge base for.... <i>(insert mgt issue)</i> in the wider community has increased over the last 3-5 years.	3	<ul style="list-style-type: none"> ▶ Local community knowledge on port related projects has increased but shipping knowledge remains poor.
OC1... the relevant managing agencies are to date effectively addressing <i>(insert mgt issue)</i> and moving towards the attainment of the <u>desired outcomes</u> .	3	<ul style="list-style-type: none"> ▶ Few incidents relative to large number of shipping movements. ▶ Invasive species, new port developments and port expansion issues not yet effectively addressed.
OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the <u>Great Barrier Reef are protected</u> (refer CO1)	4	<ul style="list-style-type: none"> ▶ As above. ▶ Many natural values existing in ports have been maintained.
OC3... the outputs (refer OP1 & 3) for.... <i>(insert mgt issue)</i> are reducing the major risks and the threats to the Great Barrier Reef	3	<ul style="list-style-type: none"> ▶ Marine pests an issue. ▶ Some WQ issues. ▶ Shipping mgt is minimising risk of incidents.
OC4... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>environmentally sustainable</u>	3	<ul style="list-style-type: none"> ▶ Issue of limited Strategic Planning and long term impacts of port activities and introduced marine pests.
OC5... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably <u>economically sustainable</u>	4	<ul style="list-style-type: none"> ▶ Economic sustainability can be demonstrated. ▶ Questions raised about levels of 'compensation' to community and management agencies and inadequate application of 'user pays' principle.
OC6... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> has demonstrably enhanced <u>community understanding and/or enjoyment</u>	4	<ul style="list-style-type: none"> ▶ Enhancing community understanding and enjoyment of the Great Barrier Reef Region is not a primary function of ports and shipping ▶ Most coastal communities depend on ports and shipping for transport of goods and services and some local employment. ▶ Port activity restricts community use of port areas. ▶ Some port activity support access to Great Barrier Reef port areas.
OC7... the relevant managing agencies have developed <u>effective partnerships</u> with local communities and/or stakeholders to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Ports contribute to community programs. ▶ Forums and committees provide mechanisms for engagement.

RECREATION SCORING SYSTEM

N/A means not applicable

1 = Relevant but rarely true ~1-20% of optimum condition
 2 = Relevant and sometimes true ~21-50% of optimum condition
 3 = Relevant and often true ~51-80% of optimum condition
 4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
CONTEXT		
CO1 ...the values ⁵¹ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Lucas et al. report ▶ Norris et al. report ▶ Fernbach report
CO2... the local risks/threats ⁵² (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Harriott report ▶ Population pressures, increased vessel registrations and marinas, small vessel sewage discharges etc identified for attention.
CO3 ..the broader (incl. global) risks /threats ⁵³ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Increasing numbers of superyachts, climate change, changes in travel patterns etc all clearly identified.
CO4 ..the regional/national level influences ⁵⁴ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Documentation associated with TRReef Advisory Committee and Local Marine Advisory Committee meetings indicates issues are identified and discussed.
CO5 ..the international/global influences ⁵⁵ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ TRReef Advisory Committee and Local Marine Advisory Committee documentation indicates influences are identified and discussed.
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	4	<ul style="list-style-type: none"> ▶ Local Marine Advisory Committee's and TRReef Advisory Committee provide mechanism and documentation from meetings and correspondence indicates engagement is effective. ▶ Regional government offices have allowed for enhanced connections with broader recreational users of the Reef.

⁵¹ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

⁵² Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

⁵³ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

⁵⁴ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

⁵⁵ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>	Score	Justification
PLANNING		
PL1....there is a <u>planning system</u> in place that <u>effectively addresses</u> <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ There are no overarching planning systems/strategy across jurisdictions however Zoning Plan covers extractive use and do address many of the conflict of use issues. ▶ Plans of Management and site management arrangements, remote natural area overlay, reef protection markers, public moorings, provide additional systems ▶ MSQ limits on small boats, jet ski and vessel registrations ▶ Whitsunday and Mackay Island Visitor Management Strategy ▶ Planning for future growth in recreation is a challenge
PL2...the <u>planning system</u> for <i>(insert mgt issue)</i> addresses the major risks/threats to the Great Barrier Reef's values	4	<ul style="list-style-type: none"> ▶ Plans of Management for high use areas. ▶ Involvement of Local Marine Advisory Committees and TRReef Advisory Committee and regional government offices
PL3....the actions for implementation regarding <i>(insert mgt issue)</i> are <u>clearly identified</u> within the plan	3	<ul style="list-style-type: none"> ▶ Covered by various plans. ▶ PoMs contain clearly identified implementation actions.
PL4.... <u>clear, measurable and appropriate objectives</u> for management of <i>(insert mgt issue)</i> have been documented	3	<ul style="list-style-type: none"> ▶ Covered by various plans. ▶ PoMs contain identified clear and measurable objectives
PL5.....the main stakeholders &/or the local community are <u>effectively engaged</u> in planning to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Local Marine Advisory Committees ▶ TRReef Advisory Committee ▶ Specific planning arrangements.
PL6 .. <u>sufficient policy</u> currently exists to effectively address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Policy set in Zoning plan and PoMs as needed. ▶ Planning for future growth in recreation is a challenge ▶ No overarching strategy for recreational use in the Great Barrier Reef
PL7... there is <u>consistency</u> across jurisdictions when planning for <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ There are some examples of consistency (e.g. zoning plans, visitor management strategy). ▶ Generally the management of recreation use is dispersed amongst many government departments.
INPUTS	Score	Justification
IN1 ...the current <u>financial resources</u> are <u>adequate</u> and <u>prioritised</u> to meet specific management objectives (refer PL4) to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Financial resources allocated to recreation research and compliance are limited. ▶ There is a significant lack of resources to establish infrastructure (boat ramps, moorings) for recreational use associated with the Great Barrier Reef ▶ Check with Queensland agencies

Component of management		
IN2...the current <u>financial resources</u> are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ As secure as can be expected. ▶ There is a significant lack of ongoing resources to maintain recreational infrastructure (e.g. moorings, no anchoring areas) and address issues in a timely manner. ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing
IN3...the current human resources within the managing organisations are adequate to meet specific management objectives (refer to PL4) to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Some human resources assigned to site planning to manage conflict of use in areas have resulted in generic management outcomes (e.g. moorings) ▶ Limited human resources directly assigned to recreational research ▶ Limited human resources directly assigned to management of recreation with regards to policy development (all within other issues) ▶ Some human resources from all managing agencies to educate recreational users through a variety of mediums (e.g. TV community announcements, publications boat shows) ▶ Limited human resources from all managing agencies for compliance (excluding illegal fishing) ▶ Check with Queensland agencies
IN4...the current <u>human resources</u> within the managing organisations are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ As secure as can be expected.
IN5... the right skill sets and expertise are currently available to the managing organisations to address(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Enhanced activity on community engagement has led to an increase in expertise relevant to managing recreation.
IN6... the necessary <u>biophysical information</u> is currently available to address(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Local knowledge of field staff is high. ▶ Good biodiversity information generally available. ▶ Recreational Use data available to match with impacts. ▶ Zoning plans and PoMs for high use areas.
IN7 .. the necessary <u>socio-economic information</u> is currently available to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Good economic data ▶ Limited recreational - visitor social research.
IN8... the necessary <u>traditional (Indigenous) knowledge</u> is currently available to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Some information is available but variable along the coast.
IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address(insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Extensive programs, TRReef Advisory Committee, OUCH, Reef Guardian schools etc.

<u>Component of management</u>	Score	Justification
PROCESSES		
PR1 ... the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ TRReef Advisory Committee and Local Marine Advisory Committee mechanisms effectively used by stakeholders. ▶ Regional government offices
PR2.... the local community is effectively engaged in the ongoing management of (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Local Marine Advisory Committees, TRReef Advisory Committee and PoM consultation processes effectively used. ▶ Regional government offices
PR3 ... there is a sound governance ⁵⁶ system in place to address (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ The array of relevant plans (e.g. Zoning Plans, PoMs, 25 year Great Barrier Reef World Heritage Area Strategic Plan) and consultative bodies (Local Marine Advisory Committees and TRReef Advisory Committee) together provide a robust framework and clear accountability.
PR4... there is effective performance monitoring to gauge progress towards the objective(s)	3	<ul style="list-style-type: none"> ▶ Little recreational impact monitoring ▶ Satisfaction ratings include recreational visitors
PR5... appropriate training is available to the managing agencies to address (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ More focus on tourism rather than recreation. ▶ Not major issues. ▶ Covered by generic training.
PR6... management of... (insert mgt issue) is consistently implemented across the relevant jurisdictions	4	<ul style="list-style-type: none"> ▶ High level of coordination across agencies. ▶ Recreational use compliance a relatively low priority.
PR7 ... there are effective processes applied to resolve differing views/ conflicts regarding (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ PoM but no clear process to assess and resolve recreational user conflicts outside this. ▶ Site planning processes have proven to be successful with managing conflict ▶ Examples of lower order site management arrangements can be found on the website (e.g. Lady Musgrave, Fitzroy Reef and Lady Elliott. ▶ Issue specific can be dealt with (e.g. Low Isles web site material). ▶ There are a multitude of agencies with different responsibilities make managing this issue complex
PR8... cumulative impacts of activities associated with..... (insert mgt issue) are appropriately considered.	3	<ul style="list-style-type: none"> ▶ Limited consideration. ▶ Some research underway.
PR9.. the best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Information used to inform site management, zoning plans and PoMs. ▶ Research underway to provide baseline information relevant to recreational use.

⁵⁶ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

Component of management		
OUTPUTS	Score	Justification
PR10 .. the best available <u>socio-economic research and/or monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Very little information available, but what is available is used.
PR11 ... the best available <u>traditional (Indigenous) knowledge</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ As above. ▶ The available knowledge has been used in developing zoning plan, PoMs and site management arrangements but limited information available
PR12... relevant <u>national standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Policies and guidelines such as Responsible Reef Practices.
PR13... relevant <u>international standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	N/A	<ul style="list-style-type: none"> ▶ Not specifically applicable to recreational activity.
OUTPUTS	Score	Justification
OP1 ... to date, the actual management program (or activities) have <u>progressed in accordance with the planned work program</u> for <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Whilst there are a range of individual initiatives (e.g. Zoning Plans, PoMs and site management arrangements) that are routinely implemented to the extent that they manage recreation. ▶ However there is no overarching strategy for managing recreational use on the Great Barrier Reef. ▶ There is a structured work program for the Day to Day Management for managing the Great Barrier Reef.
OP2 .. implementation of management documents and/or programs relevant to..... <i>(insert mgt issue)</i> have progressed in accordance with <u>timeframes</u> specified in those documents	3	<ul style="list-style-type: none"> ▶ Whilst there are a range of individual initiatives (e.g. Zoning Plans, PoMs and site management arrangements) that are routinely implemented to the extent that they manage recreation. ▶ However there is no overarching strategy for managing recreational use on the Great Barrier Reef. ▶ There is a structured work program for the Day to Day Management for managing the Great Barrier Reef.
OP3... the results (in OP1 above) have achieved their stated management objectives	3	<ul style="list-style-type: none"> ▶ Whilst there are a range of individual initiatives (e.g. Zoning Plans, PoMs and site management arrangements) that are routinely implemented to the extent that they manage recreation. ▶ However there is no overarching strategy for managing recreational use on the Great Barrier Reef. ▶ There is a structured work program for the Day to Day Management for managing the Great Barrier Reef.

Component of management	Score	Comments
<p>OP4... to date, products or services have been produced in accordance with the stated management objectives for <i>(insert mgt issue)</i></p>	4	<ul style="list-style-type: none"> ▶ Despite lack of targeted management objectives, quality products and services have been provided.
<p>OP5... the knowledge base for <i>(insert mgt issue)</i> within agencies has increased over the last 3-5 years.</p>	3	<ul style="list-style-type: none"> ▶ General increase, especially through regional staff engagement in community events ▶ Recent investment in research on recreational use is increasing the knowledge base
<p>OP6.. the knowledge base for....<i>(insert mgt issue)</i> in the wider community has increased over the last 3-5 years.</p>	3	<ul style="list-style-type: none"> ▶ General increase thanks to information availability in range of media, Local Marine Advisory Committees etc. ▶ Recent investment in research on recreational use is increasing the knowledge base
OUTCOMES	Score	
<p>OC1...the relevant managing agencies are to date effectively addressing<i>(insert mgt issue)</i> and moving towards the attainment of the desired outcomes.</p>	3	<ul style="list-style-type: none"> ▶ Recreational use generally a lower priority than tour operations. ▶ The Fernbach report has provided a gap analysis to gain understanding of recreational use and will assist management focus
<p>OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)</p>	3	<ul style="list-style-type: none"> ▶ Zoning plans, PoMs and guidelines. ▶ Limited infrastructure (e.g. moorings)available to ensure protection of the reef.
<p>OC3... the outputs (refer OP1 & 3) for <i>(insert mgt issue)</i> are reducing the major risks and the threats to the Great Barrier Reef</p>	3	<ul style="list-style-type: none"> ▶ Zoning plans, PoMs and guidelines. ▶ Limited infrastructure (e.g. moorings) available to ensure protection of the reef.
<p>OC4... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> is demonstrably environmentally sustainable</p>	3	<ul style="list-style-type: none"> ▶ Will require focused management to address sewage discharge impacts in sensitive areas. ▶ Limited infrastructure (e.g. moorings) available to ensure protection of the reef.
<p>OC5... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> is demonstrably economically sustainable</p>	3	<ul style="list-style-type: none"> ▶ The value of recreational use is greater than commercial fishing (Access Economics Report)
<p>OC6... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> has demonstrably enhanced community understanding and/or enjoyment</p>	4	<ul style="list-style-type: none"> ▶ Improved information availability ▶ 85% of Q'ld residents satisfied with visit.
<p>OC7 ... the relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address <i>(insert mgt issue)</i></p>	4	<ul style="list-style-type: none"> ▶ Regionally located staff. ▶ TRReef Advisory Committee and Local Marine Advisory Committees. ▶ Reef Guardian Councils. ▶ Whitsunday Parks Forum.

RESEARCH SCORING SYSTEM

N/A means not applicable

- 1 = Relevant but rarely true ~1-20% of optimum condition
- 2 = Relevant and sometimes true ~21-50% of optimum condition
- 3 = Relevant and often true ~51-80% of optimum condition
- 4 = Relevant and generally true ~81-100% of the optimum condition

2 sides of research: managing the activity of research via permits, zoning, accreditation; the other side is about managing our relationship with scientific community to ensure our information needs for management are met.

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
<u>CONTEXT</u>		
CO1 ...the <u>values</u> ⁵⁷ in the Great Barrier Reef relevant to(<i>insert mgt activity/ issue</i>) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Documented information system (web based) setting research priorities. ▶ Historically focused on biophysical systems and high profile species. ▶ Recent interest in socio economic drivers. ▶ Documented research priorities in the Research Information System ▶ Scientific Research Policy
CO2... the local <u>risks/threats</u> ⁵⁸ (ie within or adjacent to the Great Barrier Reef) associated with (<i>insert mgt issue</i>) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Documented policy ▶ Assessment of risks and threats are mostly understood and managed through permits system and research regulations by the management agencies but less so by the research institutions. ▶ The cumulative impact of research activities are not appropriately accounted for at the moment.
CO3 ..the <u>broader</u> (incl. global) risks /threats ⁵⁹ relevant to(<i>insert mgt issue</i>) are understood by managers.	4	<ul style="list-style-type: none"> ▶ As above. ▶ Assessment of risks and threats understood and managed through permits system and research regulations
CO4 ..the <u>regional/national level influences</u> ⁶⁰ relevant to(<i>insert mgt issue</i>) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Documented policies and procedures. ▶ Funding (e.g. Australian Research Council) is driving research to be focussed on national priorities

⁵⁷ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

⁵⁸ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

⁵⁹ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

⁶⁰ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

<u>Component of management</u>			<u>Justification</u>
CO5 ..the international/global influences ⁶¹ relevant to(insert mgt issue) are understood by managers.	2		<ul style="list-style-type: none"> ▶ Some research is being done on international trends (e.g. social research on tourism trends) but this is limited. ▶ International funding for research projects on the reef is flowing on some issues e.g. climate change
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	4		<ul style="list-style-type: none"> ▶ Documented policy, research agreements and programs for scientist- manager dialogue ▶ Dedicated research assessor position liaises with researchers regarding their research activities ▶ Dedicated Research and Monitoring Group generally liaises with researchers
<u>PLANNING</u>	<u>Score</u>		
PL1....there is a planning system in place that effectively addresses.....(insert mgt issue)	4		<ul style="list-style-type: none"> ▶ Documented policy and research programs in place. ▶ Regulations, the Zoning Plan and policy determine how research is managed
PL2...the planning system for(insert mgt issue) addresses the major risks/threats to the Great Barrier Reef's values	3		<ul style="list-style-type: none"> ▶ Regulations, the Zoning Plan and policy determine how research is managed ▶ Documented policy and research programs in place. ▶ Lack of knowledge about cumulative impacts across the Great Barrier Reef hence is difficult to implement in planning systems ▶ Individual institutions develop their annual research plans mindful of Great Barrier Reef priorities as well as other clients' needs.
PL3....the actions for implementation regarding.....(insert mgt issue) are clearly identified within the plan	4		<ul style="list-style-type: none"> ▶ Policy document. ▶ Regulations, the Zoning Plan and policy determine how research is managed
PL4.... clear, measurable and appropriate objectives for management of(insert mgt issue) have been documented	4		<ul style="list-style-type: none"> ▶ Regulations 74(4) and 74(5) detail clear, measurable objectives for the application of research and the assessment and management of research ▶ Research policy details how research should be managed ▶ The Zoning Plan details what types of research should be allowed where ▶ Objectives are generally clear and appropriate but not measurable, particularly in relation to cumulative impacts.
PL5.....the main stakeholders &/or the local community are effectively engaged in planning to address(insert mgt issue)	4		<ul style="list-style-type: none"> ▶ Good engagement with scientists and science institutions ▶ Good engagement with adjacent users where a research project may impact on their day to day use of the park, or where it may insight concern (e.g. requirement to circulate media information about research, public meetings, public advertising, Notice to mariners if equipment may impact on navigation of vessels)
PL6 .. sufficient policy currently exists to effectively address(insert mgt issue)	4		<ul style="list-style-type: none"> ▶ As above. ▶ Specific policy on "Managing Scientific Research within the Great Barrier Reef Marine Park"

⁶¹ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

Component of management	Score	Justification
<p>PL7... there is consistency across jurisdictions when planning for(insert mgt issue)</p>	3	<ul style="list-style-type: none"> ▶ Co-accreditation arrangements in place with Environmental Protection Agency and 8 research institutions. ▶ Joint permitting arrangements for all research permits in state/commonwealth waters ▶ All research permits referred to Environmental Protection Agency for comment during assessment phase ▶ DPIF are not involved in the joint permitting process for the Great Barrier Reef Marine Park and have different requirements to Environmental Protection Agency/Great Barrier Reef Marine Park Authority ▶ University/institution management of research is different in relation to ethics, research stations. However there is good coordination into Great Barrier Reef Marine Park Authority/Environmental Protection Agency permitting processes. ▶ There is a need for improved coordination among government agencies in the way information priorities are planned for. Oceans Policy Science Advisory Group are proposing a national framework for marine research.
<p>IN1 ...the current financial resources are adequate and prioritised to meet specific management objectives (refer PL4) to address(insert mgt issue)</p>	4	<ul style="list-style-type: none"> ▶ Good level of research activity funded from multiple sources. RRRC, AIMS etc. ▶ One research assessor (Great Barrier Reef Marine Park Authority) financed to assess all research permits, manage accreditation and development of Environmental Management Plans and participate in regulation and policy associated with research
<p>IN2...the current financial resources are secure (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)</p>	4	<ul style="list-style-type: none"> ▶ As secure as is reasonable. ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing
<p>IN3...the current human resources within the managing organisations are adequate to meet specific management objectives (refer to PL4) to address(insert mgt issue)</p>	4	<ul style="list-style-type: none"> ▶ The Great Barrier Reef attracts a large number of scientists to undertake research. ▶ More resources required to manage research policy, permitting and management ▶ Adequate resources for research coordination. ▶ One research assessor (Great Barrier Reef Marine Park Authority) financed to assess all research permits, manage accreditation and development of Environmental Management Plans and participate in regulation and policy associated with research
<p>IN4...the current human resources within the managing organisations are secure (ongoing, or at least secure for the next 3 years) to address(insert mgt issue)</p>	4	<ul style="list-style-type: none"> ▶ As secure as is reasonable.
<p>IN5... the right skill sets and expertise are currently available to the managing organisations to address(insert mgt issue)</p>	4	<ul style="list-style-type: none"> ▶ Management has sufficient research experience to enable effective management of research.

<u>Component of management</u>		
IN6... the necessary <u>biophysical information</u> is currently available to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Information needs reflected in research priorities. ▶ Continual partnerships and information sharing with researchers to maintain and build on biophysical information needed to manage Marine Park ▶ Need for improve info systems and resources to understand the broad cumulative impacts of research (PCAMS will assist this)
IN7 .. the necessary <u>socio-economic information</u> is currently available to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ The focus is not on the adequacy of socio-economic information. It is the adequacy of socio-economic information for determining priorities and permits. ▶ It is good for permit assessments but less so for determining priorities.
IN8... the necessary <u>traditional (Indigenous) knowledge</u> is currently available to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ It is good for permit assessments but less so for determining priorities. ▶ Native Title notification process built into assessment of all permits (including research) ▶ Internal referral process sends all research permits that may be sensitive to traditional owners, to the Indigenous Partnerships Group at Great Barrier Reef Marine Park Authority • Requirement for some researchers to contact Traditional Owners regarding their research programs and pass on a report of their findings at the end of the project
IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ All accredited research institutions are either government or with strong government links. ▶ Seagrasswatch, Bleachwatch, Eye on the Reef ▶ Researchers also use volunteers to assist with research projects. ▶ It could be a growth area.
<u>PROCESSES</u>	<u>Score</u>	<u>Justification</u>
PR1... the main <u>stakeholders &/or industry(ies)</u> are effectively <u>engaged</u> in the ongoing management of <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Accreditation and partnerships with relevant research bodies. ▶ Consultation with researchers, universities and research bodies by letter/email to inform them of new programs or to gain their feedback on new processes ▶ Presentations at universities to inform researchers of new processes regarding research management ▶ Attendance and presentation at relevant research conferences ▶ View of some researchers that partnerships between agencies and the research community to develop research priorities and directions are not fully effective
PR2... ..the <u>local community</u> is effectively <u>engaged</u> in the ongoing management of <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Through research institutions or Ethics Committee only. ▶ Via media releases and public meetings where required by their permit ▶ EREAC (ethics committee) ▶ Public advertising when required
PR3 ... there is a <u>sound governance</u> ⁶² <u>system</u> in place to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Accreditation processes and referrals to Environmental Research Ethics Advisory Committee provide a robust framework. ▶ Specific research assessor position
PR4... there is <u>effective performance monitoring</u> to gauge progress towards the objective(s)	4	<ul style="list-style-type: none"> ▶ Accreditation arrangements and Zoning plan include appropriate reporting requirements.

⁶² Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

Component of management		
PR5... <u>appropriate training</u> is available to the managing agencies to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Rely on accreditation. ▶ On the job training for permits and assessments ▶ Research coordination field receive training on statistics, tertiary education
PR6... <u>management of...</u> <i>(insert mgt issue)</i> is consistently implemented across the relevant jurisdictions	4	<ul style="list-style-type: none"> ▶ Co-operative assessment and joint permitting arrangements are in place to enhance consistency. ▶ Due to explicit regulations, policy etc each permit is assessed against same criteria with a small number of delegates to ensure transparency and consistency ▶ Policy and Ethics Committee are relied upon to resolve issues.
PR7 ... there are effective processes applied to resolve differing views/ <u>conflicts</u> regarding <i>(insert mgt issue)</i>	4	
PR8... <u>cumulative impacts</u> of activities associated with..... <i>(insert mgt issue)</i> are appropriately considered.	2	<ul style="list-style-type: none"> ▶ EMPs for high use Scientific Zones, once developed, will assist. ▶ Once Permits, Compliance and Management System completed (March 2009) cumulative impact of research (permitted and accredited) will be fully captured and reportable. ▶ Cumulative impacts are both local and broadscale on the reef.
PR9.. the best available <u>biophysical research</u> and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Applied in permit assessment decisions. ▶ Precautionary principle applied as necessary. ▶ Internal referral to expert groups ▶ External referral to experts in the relevant field where there is not the appropriate skill set internally
PR10 .. the best available socio-economic <u>research</u> and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ The focus is not on the adequacy of SE information. It is the adequacy of SE information for determining priorities and permits. ▶ It is good for permit assessments but less so for determining priorities.
PR11... the best available <u>traditional (Indigenous) knowledge</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ It is good for permit assessments but less so for determining priorities. ▶ Little relevant information identified. ▶ Native Title notification process built into assessment of all permits (including research) ▶ Internal referral process sends all research permits that may be sensitive to traditional owners, to the Indigenous Partnerships Group at Great Barrier Reef Marine Park Authority ▶ Requirement for some researchers to contact Traditional Owners regarding their research programs and pass on a report of their findings at the end of the project
PR12... relevant <u>national standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Requirements for access to biological resources under Environment Protection and Biodiversity Conservation Act adhered to.
PR13... relevant <u>international standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Convention on Biological Diversity requirements for access to biological resources adhered to.

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
OUTPUTS		
OP1... to date, the actual management program (or activities) have progressed in accordance with the planned work program for (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Accreditation in place. ▶ Environmental Management Plans for scientific research zones slow in development. ▶ Permits generally issued on time.
OP2 .. implementation of management documents and/or programs relevant to..... (insert mgt issue) have progressed in accordance with timeframes specified in those documents	3	<ul style="list-style-type: none"> ▶ Annual Reports provided by accredited institutions as required by Memoranda of Understanding. ▶ Permit conditions usually complied with. ▶ Review of the limited impact collection limits in the regulations underway ▶ New management framework (e.g. accreditation) is not fully implemented because of a lack of resources to implement.
OP3... the results (in OP1 above) have achieved their stated management objectives	4	<ul style="list-style-type: none"> ▶ Average 250 current research permits. ▶ 8 research institutions accredited. ▶ One EMP for Scientific Research zone in place and two drafted.
OP4... to date, products or services have been produced in accordance with the stated management objectives for (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ As above. ▶ On line processing of permit applications.
OP5... the knowledge base for (insert mgt issue) within agencies has increased over the last 3-5 years.	4	<ul style="list-style-type: none"> ▶ New information incorporated into management.
OP6.. the knowledge base for.... (insert mgt issue) in the wider community has increased over the last 3-5 years.	4	<ul style="list-style-type: none"> ▶ Through Local Marine Advisory Committee. ▶ Through Eye on the Reef Program ▶ Through Reef HQ ▶ Through Reef Guardian Schools ▶ ReefED website ▶ Scientific community have their own communication strategies
OUTCOMES	Score	Justification
OC1... the relevant managing agencies are to date effectively addressing (insert mgt issue) and moving towards the attainment of the desired outcomes.	4	<ul style="list-style-type: none"> ▶ Accreditation and permit processes. ▶ Research informs management. ▶ PCAMS will manage research in a more streamlined manner, capture cumulative impacts more thoroughly and now determine which research priorities are being addressed by research, how much community engagement is occurring by researchers
OC2... the outputs relating to (insert mgt issue) are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	4	<ul style="list-style-type: none"> ▶ As above.
OC3... the outputs (refer OP1 & 3) for.... (insert mgt issue) are reducing the major risks and the threats to the Great Barrier Reef	4	<ul style="list-style-type: none"> ▶ As above.

Component of management		
OC4... use of the Great Barrier Reef relating to <u>....(insert mgt issue) is demonstrably environmentally sustainable</u>	4	<ul style="list-style-type: none"> ▶ As above.
OC5... use of the Great Barrier Reef relating to <u>....(insert mgt issue) is demonstrably economically sustainable</u>	N/A	<ul style="list-style-type: none"> ▶ Economic sustainability is not the objective of managing research. ▶ With research it is about ongoing funding which is addressed elsewhere.
OC6... use of the Great Barrier Reef relating to <u>....(insert mgt issue) has demonstrably enhanced community understanding and/or enjoyment</u>	4	<ul style="list-style-type: none"> ▶ Through Local Marine Advisory Committees and education institutions? ▶ Through Eye on the Reef Program ▶ Through Reef HQ ▶ Through Reef Guardian Schools ▶ Science in the Community program run by Community Partnerships Group & R&M ▶ Community surveys do not indicate research as a threat.
OC7 ... the relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address <u>.... (insert mgt issue)</u>	4	<ul style="list-style-type: none"> ▶ Accreditation and agreements with research institutions are sound basis for partnerships.

TOURISM

SCORING SYSTEM

1 = Relevant but rarely true ~1-20% of optimum condition
 3 = Relevant and often true ~51-80% of optimum condition

2 = Relevant and sometimes true ~21-50% of optimum condition
 4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
<u>CONTEXT</u>		
CO1 ...the values ⁶³ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Management focused on facilitating high quality sustainable tourism experiences ▶ Tour Operator's Handbook and Responsible Reef Practices guide provide basis for effective partnerships with Tourism industry. ▶ Annual Report documents strong performance. ▶ The values in the Great Barrier Reef are also reflected in the economic value to Australia which has been well studied and documented, eg Access Economics report.
CO2... the local risks/threats ⁶⁴ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ As above, Tour Operator's Handbook and Responsible Reef Practices guide demonstrate commitment to minimising direct impacts. ▶ Water Quality monitoring and other programs show recognition of risks to the natural assets which are the focus for tour groups.
CO3 ..the broader (incl. global) risks /threats ⁶⁵ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Clear through links with Tourism agencies and industry as well as efforts to address climate change and other threats. ▶ TRReef Advisory Committee ensures broader input on industry concerns and sustainability issues. ▶ The values in the Great Barrier Reef are also reflected in the economic value to Australia which has been well studied and documented, eg Access Economics report.
CO4 ..the regional/national level influences ⁶⁶ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ As above.
CO5 ..the international/global influences ⁶⁷ relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ As above. ▶ Increasing concern that media coverage of climate change threats reduces marketability.
CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.	4	<ul style="list-style-type: none"> ▶ Assured through TRReef Advisory Committee, Local Marine Advisory Committees and links to regional tourism bodies as well as Queensland and national agencies.

⁶³ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

⁶⁴ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

⁶⁵ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

⁶⁶ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

⁶⁷ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

Component of management	Score	Justification
PLANNING		
<p>PL1 there is a <u>planning system in place that effectively addresses</u> <i>(insert mgt issue)</i></p> <p>PL2...the <u>planning system for</u> <i>(insert mgt issue)</i> addresses the major risks/threats to the Great Barrier Reef's values</p>	4	<ul style="list-style-type: none"> ▶ Zoning Plans and Plans of management are in place for key sites (<10% of total area) that receive more than 80% of tourists. ▶ Clear focus on risks/threats to biophysical values. ▶ Attention to social and especially indigenous issues is not so clear ▶ There is a statutory requirement for public consultation as a component of the preparation of Plans of Management. In addition, the documented Great Barrier Reef Marine Park Authority policy process also requires public consultation. Reports prepared for the CAPOM (e.g. Britnall) identified important indigenous sites/issues which were considered in the developments of that Plan. ▶ Planning systems in place especially POM specifically set out to preserve a range of social experiences. ▶ Relevant sites and actions set out in Zoning plans and Plans of Management.
<p>PL3....the actions for implementation regarding <i>(insert mgt issue)</i> are clearly identified within the <u>plan</u></p>	4	
<p>PL4.... clear, measurable and appropriate objectives for management of <i>(insert mgt issue)</i> have been documented</p>	3	<ul style="list-style-type: none"> ▶ Sustainability objective clearly set in Great Barrier Reef 25 yr Strategic Plan but there is a recognised need to articulate clearer and more measurable objectives that are meaningful for all agencies involved in tourism. ▶ The Plans of Management clearly set out some management objectives in capping use in the Whitsundays and offshore Cairns. The Hinchinbrook Plan set out management objectives of very low use in keeping with the values of the area. ▶ Clear mechanisms for engagement are in place and documentation of issues discussed in TRReef Advisory Committee and Local Marine Advisory Committee meetings indicate engagement is effective.
<p>PL5.....the main stakeholders &/or the local community are <u>effectively engaged</u> in planning to address <i>(insert mgt issue)</i></p>	4	
<p>PL6 .. <u>sufficient policy</u> currently exists to effectively address <i>(insert mgt issue)</i></p>	3	<ul style="list-style-type: none"> ▶ Policy framework and capacity to make policy seems to be in place. ▶ A challenge remains to ensure that policies are strategic and proactive in addressing emerging issues such as the growing superyacht industry ▶ There is a significant amount of policy already in place to address tourism activity in the Great Barrier Reef Marine Park, including policies on Managing Tourism Permission, Managing Bareboat Operations, Cruise Shipping, Moorings, Plans of Management for high use areas and site management arrangements. It is recognised that there will be an ongoing need to develop new policies and/or update existing policies. ▶ While 'high level complementarity' and joint management and policy minimise duplication between Great Barrier Reef Marine Park Authority and QPW the need for an overarching strategy covering all Govt agencies involved in tourism is recognised.
<p>PL7... there is <u>consistency across jurisdictions</u> when planning for <i>(insert mgt issue)</i></p>	3	

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
<u>INPUTS</u>		
IN1 ...the current <u>financial resources</u> are <u>adequate</u> and prioritised to meet specific management objectives (refer PL4) to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Environmental Management Charge equates to ~19% of Great Barrier Reef Marine Park Authority total annual budget. ▶ Prioritisation of budget allocations will always leave some desirable projects unfunded.
IN2...the current <u>financial resources</u> are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains) ▶ Work demands growing without commensurate growth in resourcing ▶ Uncertainty in tourism trends will generate uncertainty in EMC but any reduction is also likely to be linked to a reduction in the level of compliance activity required.
IN3...the current <u>human resources</u> within the managing organisations are <u>adequate</u> to meet specific management objectives (refer to PL4) to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Tourism related work programs generally achieved each year. ▶ Tourism permissions generally processed within agreed timeframes but lower priority work programs may be delayed when resources are limited. ▶ As secure as can be expected. ▶ Vulnerability of corporate knowledge recognised as an issue related to extensive use of temporary staff.
IN4...the current <u>human resources</u> within the managing organisations are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Agency skills and expertise supported and augmented through industry partnerships.
IN5... the <u>right skill sets and expertise</u> are currently available to the managing organisations to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Information on tourism use and impacts readily available. ▶ Priority research needs identified. ▶ Tour operators involved in data collection.
IN6... the necessary <u>biophysical information</u> is currently available to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ As previously noted much of the research into tourism was conducted in the 1990's and whilst it is considered still to be relevant, changing trends have driven research and monitoring into new areas, eg. Swim with minke whales programs in the Ribbon Reefs ▶ Recent assessments of tourism eg Access Economics report and sector specific research into diving and snorkelling activities has provided current information. ▶ Further addressing knowledge of some industry sectors would assist in tracking trends. eg assist in tracking trends of bareboats
IN8... the necessary <u>traditional (Indigenous) knowledge</u> is currently available to address <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Some information is available but variable along the coast ▶ Trust issues with traditional owners need to be addressed. ▶ Talk to key staff.

<u>Component of management</u>		
<u>PROCESSES</u>	Score	Justification
IN9... there are additional sources of <u>non-government input</u> (e.g. volunteers) contributing to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Significant inputs. ▶ 'Healthy Reef Healthy Industry'. ▶ OUCH.
PR1...the main stakeholders &/or industry(ies) are <u>effectively engaged</u> in the ongoing management of <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ High levels of industry partnerships and through TRReef Advisory Committee. ▶ Documentation from TRReef Advisory Committee meetings and correspondence indicates effective engagement. ▶ In addition there are specific industry engagement roles within the T&R Group that conduct day to day liaison with the tourism industry.
PR2... ..the <u>local community</u> is <u>effectively engaged</u> in the ongoing management of <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Community engagement through Local Marine Advisory Committees; regional offices also now involved in engaging people eg. site planning ▶ Documentation from Local Marine Advisory Committee meetings and correspondence indicates effective engagement. ▶ Development of PoMs and policies have involved community consultation and largely address community expectations.
PR3 ... there is a <u>sound governance</u> ⁶⁸ <u>system in place</u> to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Cross delegations and 'complementary management arrangements' between agencies ▶ There is a significant degree of similarity in relevant Commonwealth and State Great Barrier Reef legislation, zoning plans and policies which has resulted from the complementary approach to management taken by the Great Barrier Reef Marine Park Authority and QPW, under-pinned by the Emerald Agreement. Similarly the Great Barrier Reef Marine Park Authority works closely with other agencies, particularly those from the State, which manage tourism use in the Great Barrier Reef Marine Park, eg. Recent developments in the management of Super Yachts.
PR4... there is <u>effective performance monitoring</u> to gauge progress towards the objective(s)	3	<ul style="list-style-type: none"> ▶ Performance monitoring is currently conducted largely on social aspects, eg numbers of visitors, visitor satisfaction, etc with little monitoring of performance related to the impacts on the ecosystems from tourism use however the expansion of the Eye on the Reef monitoring program will assist in this regard as does rewarding operators for performing at best practice level through the high standard operators program (this program is externally audit with advice from the Great Barrier Reef Marine Park Authority). ▶ Compliance patrols also may be considered to be gauging performance. ▶ 46% of Great Barrier Reef tourists carried on high standard operators

<u>Component of management</u>		
PR5... appropriate training is available to the managing agencies to address (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Although no specific targeted training, the Great Barrier Reef Marine Park Authority does have an excellent staff training and development program which can incorporate on site training, assistance with tertiary studies, attendance at workshops and conferences, participation in industry training programs, Graduate Officer program and where resources allow, secondment to other agencies. ▶ Also add in joint training with Environmental Protection Agency.
PR6... management of.... (insert mgt issue) is consistently implemented across the relevant jurisdictions	4	<ul style="list-style-type: none"> ▶ Compliance and enforcement programs in place. ▶ High levels of co-ordination in place between agencies. ▶ Joint permitting and assessment processes in place.
PR7 ... there are effective processes applied to resolve differing views/ conflicts regarding (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Appeals process on permits. ▶ Regular meetings of co-ordination groups. ▶ Regular meetings of Advisory Committees.
PR8... cumulative impacts of activities associated with..... (insert mgt issue) are appropriately considered.	3	<ul style="list-style-type: none"> ▶ PoMs and permit conditions seek to limit frequency of access, number of vessels and aircraft, groups sizes, latent effort and cumulative impacts ▶ 'Use it or lose it' permit provisions assist in managing opportunities in high use areas. ▶ Impacts with tourism are largely in relation to how vessels access locations and manage their activities at those sites. The majority of operators accessing a location frequently are using moorings as sustainable method of access.
PR9.. the best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Contemporary knowledge used in development of plans, policies and permit assessments.
PR10 .. the best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Current research focused on better understanding industry values and significance of iconic assets. This research will further assist in decision making ▶ Where information is available, it is applied. ▶ EMC is used to effectively assist in understanding use patterns. ▶ Public Environment Reports and Environmental Impact Statements often invite broader community views.
PR11 ... the best available traditional (Indigenous) knowledge is applied appropriately to make relevant management decisions regarding (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Very little information available, but what is available is used ▶ The available knowledge has been used in developing zoning plan, PoMs and site management arrangements but limited information available
PR12... relevant national standards are identified and being met regarding (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Widely recognised as world leader.
PR13... relevant international standards are identified and being met regarding (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ As above. ▶ Assorted awards and recognition.

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
<u>OUTPUTS</u>		
OP1... to date, the actual management program (or activities) have progressed in accordance with the planned work program for <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Plans and permitting arrangements systematic, professionally implemented and reported in Annual Report.
OP2 .. implementation of management documents and/or programs relevant to <i>(insert mgt issue)</i> have progressed in accordance with timeframes specified in those documents	3	<ul style="list-style-type: none"> ▶ “Progress on some programs ... dependent on priorities assigned by other agencies” . ▶ PoMs prepared and tourism permissions generally processed within agreed timeframes but lower priority work programs may be delayed when resources are limited
OP3... the results (in OP1 above) have achieved their stated management objectives	3	<ul style="list-style-type: none"> ▶ Widely accepted that tourism is well managed but explicit supporting documentation provided is limited.
OP4... to date, products or services have been produced in accordance with the stated management objectives for <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Robust array of policies, position statements and guidelines in place targeting sustainable tourism objective.
OP5... the knowledge base for <i>(insert mgt issue)</i> within agencies has increased over the last 3-5 years.	4	<ul style="list-style-type: none"> ▶ Capacity growth has lead to confidence that tourism can be managed sustainably.
OP6.. the knowledge base for.... <i>(insert mgt issue)</i> in the wider community has increased over the last 3-5 years.	4	<ul style="list-style-type: none"> ▶ Numerous mechanisms in place to share information and enhance the community wide knowledge base. Documentation associated with TRReef Advisory Committee and Local Marine Advisory Committee meetings indicates that the community is knowledgeable and engaged.
<u>OUTCOMES</u>	<u>Score</u>	<u>Justification</u>
OC1 ... the relevant managing agencies are to date effectively addressing <i>(insert mgt issue)</i> and moving towards the attainment of the desired outcomes.	4	<ul style="list-style-type: none"> ▶ Policies, plans , programs and partnerships all indicate positive trends. ▶ 46% of all tourists carried by high standard operators ▶ Tourism operators are supportive of management arrangements ‘healthy reef healthy industry’ ▶ An increased level of stewardship by operators is evident thorough partnership programs (e.g High standards program, Sightings Network, Eye on the Reef monitoring program, Bleachwatch, Eyes and Ears incident reporting)
OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	3	<ul style="list-style-type: none"> ▶ Major efforts directed at intensively used sites. ▶ Are values elsewhere secure from tourism impacts? ▶ Operators are strongly in support of mgt arrangements that protect the values of the Great Barrier Reef thro the shared view of ‘healthy Reef, healthy industry’ ▶ Operators actively engaged in development of, and management arrangements for, Dwarf Minke whales
OC3... the outputs (refer OP1 & 3) for <i>(insert mgt issue)</i> are reducing the major risks and the threats to the Great Barrier Reef	4	<ul style="list-style-type: none"> ▶ Policies, permitting arrangements, accreditation of tour operators and compliance efforts have contributed to reducing risks.

<u>Component of management</u>		
<p>OC4... use of the Great Barrier Reef relating to ...<i>(insert mgt issue)</i> is demonstrably <u>environmentally sustainable</u></p>	3	<ul style="list-style-type: none"> ▶ All tourism operations managed through minimum legislative requirements including an assessment and permitting system ▶ "46% of all visitors to the Reef are carried on High Standard tourism operations." ▶ Research (CRC Reef technical report) supports tourism is an environmentally sustainable activity with limited impacts ▶ Monitoring of tourism sites through the Eye on the reef monitoring program supports view tourism activities are sustainable.
<p>OC5... use of the Great Barrier Reef relating to ...<i>(insert mgt issue)</i> is demonstrably <u>economically sustainable</u></p>	4	<ul style="list-style-type: none"> ▶ Largest commercial use of Reef. ▶ Significant contributor to regional economies.
<p>OC6... use of the Great Barrier Reef relating to ...<i>(insert mgt issue)</i> has demonstrably enhanced <u>community understanding and/or enjoyment</u></p>	4	<ul style="list-style-type: none"> ▶ High levels of visitor satisfaction.
<p>OC7... the relevant managing agencies have developed <u>effective partnerships</u> with local communities and/or stakeholders to address ...<i>(insert mgt issue)</i></p>	4	<ul style="list-style-type: none"> ▶ Policies and guidance documents coupled with formal partnerships and TRReef Advisory Committee provide a robust framework. ▶ Documentation associated with TRReef Advisory Committee meetings indicates partnerships are effective.

TRADITIONAL USE OF MARINE RESOURCES
SCORING SYSTEM

N/A means not applicable

1 = Relevant but rarely true ~1-20% of optimum condition

3 = Relevant and often true ~51-80% of optimum condition

2 = Relevant and sometimes true ~21-50% of optimum condition

4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
CONTEXT CO1 ...the values ⁶⁹ in the Great Barrier Reef relevant to(insert mgt activity/ issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Strategic Plan. ▶ Heritage Strategy. ▶ Lucas et al. 1997 ▶ Commitment to Traditional use of marine resources agreements - but within a minimalist view (focus on turtle and dugong)
CO2... the local risks/threats ⁷⁰ (ie within or adjacent to the Great Barrier Reef) associated with (insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Strategic Plan. ▶ Heritage Strategy. ▶ Traditional use of marine resources agreements. ▶ Indigenous people consider that they are considered as a threat
CO3 ..the broader (incl. global) risks /threats ⁷¹ relevant to(insert mgt issue) are understood by managers.	3	<ul style="list-style-type: none"> ▶ Heritage Strategy. ▶ Traditional use of marine resources agreements. ▶ Climate change vulnerability. (Johnson and Marshall) ▶ Especially relevant to migratory species. ▶ IPLU established ▶ More attention could given to international policies and trends in relation to indigenous rights, knowledge and benefit sharing
CO4 ..the regional/national level influences ⁷² relevant to(insert mgt issue) are understood by managers.	4	<ul style="list-style-type: none"> ▶ Heritage Strategy. ▶ Traditional use of marine resources agreements ▶ IPLU established

⁶⁹ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

⁷⁰ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

⁷¹ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

⁷² Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

<p><u>Component of management</u></p>		
<p><u>PLANNING</u></p>	<p>Score</p>	<p><u>Justification</u></p>
<p>CO5 ..the international/global influences⁷³ relevant to(insert mgt issue) are understood by managers.</p>	<p>4</p>	<ul style="list-style-type: none"> ▶ World Heritage value documentation – Lucas et al. ▶ Strategic Plan. ▶ IPLU established
<p>CO6 ..the stakeholders relevant to(insert mgt issue) are well known by managers.</p>	<p>4</p>	<ul style="list-style-type: none"> ▶ “Reef-wide framework’. ▶ Traditional use of marine resources agreements and associated documentation. ▶ IPLU established
<p>PL1 there is a planning system in place that effectively addresses.....(insert mgt issue)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Strategic Plan. ▶ Reef wide framework. ▶ National partnership Approach to Sustainable Harvest of Dugongs and marine turtles. ▶ Traditional use of marine resources agreements ▶ Limited capacity within management agencies to deal with development of Traditional use of marine resources agreements simultaneously with many communities ▶ Traditional use of marine resources agreements have not been developed as yet for those areas where the take of dugong is highest and the negotiations are likely to be most difficult ▶ ILUAs
<p>PL2...the planning system for(insert mgt issue) addresses the major risks/threats to the Great Barrier Reef's values</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ As above. ▶ Traditional use of marine resources agreements
<p>PL3....the actions for implementation regarding.....(insert mgt issue) are clearly identified within the plan</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Working towards cross jurisdictional consistency. ▶ Aspiration statements and implementation plans part of Traditional use of marine resources agreement packages but coverage is limited
<p>PL4.... clear, measurable and appropriate objectives for management of(insert mgt issue) have been documented</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Traditional use of marine resources agreement implementation plans but focus on only limited aspects of traditional use ▶ Need to address some broader biological resource issues, capacity building in communities
<p>PL5.....the main stakeholders &/or the local community are effectively engaged in planning to address(insert mgt issue)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Traditional use of marine resources agreements and associated mechanisms for engagement in place. ▶ Effectiveness of engagement highly variable. ▶ Currently applied mechanisms not necessarily well matched to Traditional Owner approaches. ▶ Difficulty for TO's in representational roles.

⁷³ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

Component of management		
<p>PL6 .. <u>sufficient policy</u> currently exists to effectively address<i>(insert mgt issue)</i></p>	<p>2</p>	<ul style="list-style-type: none"> ▶ Limited policy beyond Turtles/Dugong. ▶ Lack of clear position on traditional fishing. ▶ Limited co-ordination across Traditional use of marine resources agreements – turtle and dugong management needs overarching policy ▶ Lack in policy in relation to use of other aquatic biological resources
<p>PL7... there is <u>consistency across jurisdictions</u> when planning for<i>(insert mgt issue)</i></p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Limited consistency on some mechanisms for delivery but strong consistency on commitment and outcomes. ▶ Queensland has parallel but differing approach to MOUs which may be confusing for communities and TOs in working across jurisdictions
INPUTS	Score	Justification
<p>IN1 ...the current <u>financial resources</u> are <u>adequate and prioritised</u> to meet specific management objectives (refer PL4) to address<i>(insert mgt issue)</i></p>	<p>2</p>	<ul style="list-style-type: none"> ▶ Great Barrier Reef Marine Park Authority been advised to negotiate ILUAs on sea country as equal partners with Environmental Protection Agency ▶ Geographically remote priority areas require significant resource commitments from both management agencies and communities ▶ Priority Indigenous communities pose significant challenges, especially in remote locations ▶ IPLU resources limited in relation to size of the task
<p>IN2...the current <u>financial resources</u> are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address<i>(insert mgt issue)</i></p>	<p>2</p>	<ul style="list-style-type: none"> ▶ As secure as can be expected. ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains). ▶ Work demands growing without commensurate growth in resourcing. ▶ Funding is very variable amongst communities and not always easy to access. ▶ Lack of long-term funding for Indigenous Rangers and ranger co-ordination is seen as major problem.
<p>IN3...the current <u>human resources</u> within the managing organisations are <u>adequate</u> to meet specific management objectives (refer to PL4) to address<i>(insert mgt issue)</i></p>	<p>2</p>	<ul style="list-style-type: none"> ▶ To achieve the full potential of sea country partnerships, more staff are required to administer and run programs ▶ Approximately 50% of the Queensland's Indigenous population live adjacent to the Great Barrier Reef. All management agency staffing dedicated to engagement is limited.
<p>IN4...the current <u>human resources</u> within the managing organisations are <u>secure</u> (ongoing, or at least secure for the next 3 years) to address<i>(insert mgt issue)</i></p>	<p>3</p>	<ul style="list-style-type: none"> ▶ As secure as can be expected. ▶ Benefits from recent increased resourcing for sea country management are yet to be fully realised ▶ Lack of long-term funding for Indigenous Rangers and ranger co-ordination is seen as major problem
<p>IN5... the right skill sets and expertise are <u>currently available</u> to the managing organisations to address<i>(insert mgt issue)</i></p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Engagement is a two-way process; skills of all staff are relevant; not just Indigenous staff.

<u>Component of management</u>		
IN6... the necessary biophysical information is currently available to address (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Lack mechanisms to collect reliable data on take. ▶ There is some information about sustainable mortality limits of green turtle and dugong, but information about harvest, poaching and other mortality is more limited.
IN7 .. the necessary socio-economic information is currently available to address (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Poor socio-economic information available. ▶ Socio-economic drivers of Traditional use of marine resources agreements are largely undocumented. ▶ Socio economic factors are well document but the decision drivers are unknown. There are geographic in the drivers are well known from engagement and existing partnerships. ▶ Largely anecdotal information and statistically reliable information is limited.
IN8... the necessary traditional (Indigenous) knowledge is currently available to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Generally poor level of traditional knowledge in documented/ useable form. ▶ Agency policies and compliance mechanisms don't readily mesh with Traditional Owner roles/lore. ▶ There is good information about sustainable mortality limits of green turtle and dugong, but information about harvest, poaching and other mortality is limited.
IN9... there are additional sources of non-government input (e.g. volunteers) contributing to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Limited capacity on both sides to facilitate meaningful contributions. ▶ Limited knowledge of actual contributions made by communities. ▶ Some communities supported by Christensen Fund to do on-ground resource management work.
<u>PROCESSES</u>	Score	<u>Justification</u>
PR1. ... the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Mechanisms in place but are they right ones and are they effective?
PR2.... ..the local community is effectively engaged in the ongoing management of (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Mechanisms in place but are they right ones and are they effective? ▶ Happening where Traditional use of marine resources agreements exist but needs to be expanded in geographic scope and targeted biological resources (not just turtle and dugong).
PR3 ... there is a sound governance ⁷⁴ system in place to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Governance varies between agencies and between Indigenous communities. ▶ Govt keeps trialling systems to address governance issues. ▶ ILUAs may be most rigorous process. ▶ Traditional use of marine resources agreements ▶ Differences on policies and priorities can complicate governance.

⁷⁴ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

Component of management		
PR4... there is <u>effective performance monitoring</u> to gauge progress towards the objective(s)	2	<ul style="list-style-type: none"> ▶ Virtually no performance monitoring. ▶ Limited training. ▶ Inconsistency in mechanisms for implementation. ▶ Consistency in commitment and outcomes. ▶ Traditional use of marine resources agreements will help with this monitoring
PR5... <u>appropriate training</u> is available to the managing agencies to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Limited. Training is variable across agencies and communities. Needs to be focussed on all staff rather than focussed on the 'dedicated Indigenous engagement staff' and those that are interested. ▶ Environmental Protection Agency training associated with ILUAs and MoUs.
PR6... management of... <i>(insert mgt issue)</i> is consistently implemented across the relevant jurisdictions	3	<ul style="list-style-type: none"> ▶ Traditional use of marine resources agreements. ▶ ILUAs. ▶ Queensland/Commonwealth liaison. ▶ Some variation due to differing managing philosophies and managing environments.
PR7... there are effective processes applied to resolve <u>differing views/ conflicts</u> regarding <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Mechanisms in place but are they right ones and are they effective? ▶ Not working at necessary level in all communities.
PR8... <u>cumulative impacts</u> of activities associated with..... <i>(insert mgt issue)</i> are appropriately considered.	3	<ul style="list-style-type: none"> ▶ Cumulative impact on dugongs and turtles taken into account when setting sustainability levels.
PR9.. the best available <u>biophysical research</u> and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ 1997 decision on dugong hunting in Southern Great Barrier Reef indicates use of relevant information in decision making on traditional use. ▶ More recent referenced research is relevant and available to decision makers. ▶ Partnership research with communities will help in application of knowledge to management
PR10 .. the best available <u>socio-economic research</u> and/or <u>monitoring information</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Little available. ▶ Some new research more relevant to management.
PR11... the best available <u>traditional (Indigenous) knowledge</u> is applied appropriately to make relevant management decisions regarding <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Used by Traditional Owners but not by management agencies. ▶ However, Elders/Leaders talk about a generational lack of respect for traditional knowledge and seek to reinvigorate traditional law so that younger TOs apply traditional knowledge appropriately. Many see partnerships with government (e.g. Traditional use of marine resources agreements) as mechanisms for achieving this.
PR12... relevant <u>national standards</u> are identified and being met regarding <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Sustainable harvest guidelines applied. ▶ Environment Protection and Biodiversity Conservation Act provisions.

<u>Component of management</u>	Score	Justification
PR13... relevant international standards are identified and being met regarding (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Variable across communities and international standards (e.g. human rights, Convention on Biological Diversity).
OUTPUTS		
OP1 ... to date, the actual management program (or activities) have progressed in accordance with the planned work program for (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Reef-wide framework applied. ▶ Limited number of Traditional use of marine resources agreements negotiated. Pace of acceptance, development and implementation of Traditional use of marine resources agreements and other management arrangements is driver by TOs and their local capacity – generally not by government agendas and timelines.
OP2 .. implementation of management documents and/or programs relevant to..... (insert mgt issue) have progressed in accordance with timeframes specified in those documents	3	<ul style="list-style-type: none"> ▶ Limited Traditional use of marine resources agreements negotiated. Pace of acceptance, development and implementation of Traditional use of marine resources agreements and other management arrangements is driver by TOs and their local capacity – generally not by government agendas and timelines. ▶ Timelines often not met and considered unrealistic.
OP3... the results (in OP1 above) have achieved their stated management objectives	3	<ul style="list-style-type: none"> ▶ Agreement on objective but progress on formalising Traditional use of marine resources agreements is slow. Pace of acceptance, development and implementation of Traditional use of marine resources agreements and other management arrangements is driver by TOs and their local capacity – generally not by government agendas and timelines.
OP4... to date, products or services have been produced in accordance with the stated management objectives for (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ 4 Traditional use of marine resources agreements. ▶ Focus on dugong and turtles rather than fish. Some communities will broaden the range of species and habitats in future Traditional use of marine resources agreements.
OP5... the knowledge base for (insert mgt issue) within agencies has increased over the last 3-5 years.	4	<ul style="list-style-type: none"> ▶ Improving. ▶ Traditional Owner Information System continuous development: Profiles, Story Place, Cultural Heritage database ▶ Liaison has improved with National Native Title Tribunal, Land Councils/NTRBs, Cultural heritage bodies and other representative bodies, AIATSIS ▶ Nursey-Bray, M. PH D thesis 2006 - send copy of abstract – see KD for copy? - Done (check with SS and Helene Marsh)
OP6.. the knowledge base for....(insert mgt issue) in the wider community has increased over the last 3-5 years.	2	<ul style="list-style-type: none"> ▶ Increased access to products and services but more work needed. ▶ Community interest in uptake of information is variable. ▶ Little knowledge and understanding in the broader community of the range of traditional use issues and Indigenous connection to Great Barrier Reef.

<u>Component of management</u>	Score	<u>Justification</u>
<p>OUTCOMES</p> <p>OC1... the relevant managing agencies are to date effectively addressing<i>(insert mgt issue)</i> and moving towards the attainment of the desired <u>outcomes</u>.</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Govt seeking not to hinder traditional use. ▶ Recognition and support for TO rights and management responsibilities.
<p>OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the <u>Great Barrier Reef are protected</u> (refer CO1)</p>	<p>3</p>	<ul style="list-style-type: none"> ▶ 4 Traditional use of marine resources agreements. ▶ Work on ILUAs and MoUs.
<p>OC3... the outputs (refer OP1 & 3) for <i>(insert mgt issue)</i> are reducing the major risks and the threats to the <u>Great Barrier Reef</u></p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Poor information on take. ▶ Addressing all impacts (e.g. water quality, fishing, climate change) not just on legal and illegal harvest by Indigenous peoples
<p>OC4... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> is demonstrably <u>environmentally sustainable</u></p>	<p>2</p>	<ul style="list-style-type: none"> ▶ Attempting to apply precautionary principle within limits of available information.
<p>OC5... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> is demonstrably <u>economically sustainable</u></p>	<p>2</p>	<ul style="list-style-type: none"> ▶ Economic sustainability of communities is not being enhanced by the way in which they are managing resources.
<p>OC6... use of the Great Barrier Reef relating to<i>(insert mgt issue)</i> has demonstrably enhanced <u>community understanding and/or enjoyment</u></p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Many Indigenous people undertake traditional use to provide traditional food for families, educate young people and practice their culture. ▶ Lack of full community consultation and negotiation does impacts on cultural practice and transmission of knowledge – Traditional use of marine resources agreements are assisting in improving this situation
<p>OC7... the relevant managing agencies have developed <u>effective partnerships</u> with local communities and/or stakeholders to address <i>(insert mgt issue)</i></p>	<p>3</p>	<ul style="list-style-type: none"> ▶ Relationships with TOs and local communities have improved. ▶ Heightened management agency staff awareness of Indigenous cultural issues. ▶ Greater TO awareness of management regimes, threatened spp issues etc.

WATER QUALITY**SCORING SYSTEM**

1 = Relevant but rarely true ~1-20% of optimum condition
 2 = Relevant and sometimes true ~21-50% of optimum condition
 3 = Relevant and often true ~51-80% of optimum condition
 4 = Relevant and generally true ~81-100% of the optimum condition

<u>Component of management</u>	<u>Score</u>	<u>Justification</u>
<u>CONTEXT</u>		
CO1 ...the <u>values</u> ⁷⁵ in the Great Barrier Reef relevant to <i>(insert mgt activity/ issue)</i> are understood by managers.	4	<ul style="list-style-type: none"> ▶ Reef Water quality protection Plan. ▶ Science consensus statement. ▶ Productivity Commission report. ▶ Annual marine Monitoring report. ▶ Review of reef water quality science
CO2... the local risks/threats ⁷⁶ (ie within or adjacent to the Great Barrier Reef) associated with <i>(insert mgt issue)</i> are understood by managers.	4	<ul style="list-style-type: none"> ▶ As above. ▶ 400% increase in sediments and nutrients. ▶ Chemical and nutrient concerns documented. ▶ Recognition of significance of catchment wetland decline. ▶ Water quality report card ▶ Review of reef water quality science
CO3 ..the <u>broader (incl. global) risks /threats</u> ⁷⁷ relevant to <i>(insert mgt issue)</i> are understood by managers.	4	<ul style="list-style-type: none"> ▶ Climate vulnerability report
CO4 ..the <u>regional/national level influences</u> ⁷⁸ relevant to <i>(insert mgt issue)</i> are understood by managers.	4	<ul style="list-style-type: none"> ▶ Climate vulnerability report.
CO5 ..the <u>international/global influences</u> ⁷⁹ relevant to <i>(insert mgt issue)</i> are understood by managers.	4	<ul style="list-style-type: none"> ▶ Climate vulnerability report
CO6 ..the <u>stakeholders</u> relevant to <i>(insert mgt issue)</i> are well known by managers.	4	<ul style="list-style-type: none"> ▶ Annual marine Monitoring report. ▶ Water quality report card

⁷⁵ Values include such things as biological significance (eg. biodiversity); socio-economic significance, educational or scientific significance, cultural or historical significance; significance for traditional (Indigenous) people, etc

⁷⁶ Local risks/threats include such aspects as unsustainable activities within GBR, adjacent land-uses, etc

⁷⁷ Broader (incl global) risks and threats include such aspects as large scale weather patterns, large scale disasters, etc

⁷⁸ Regional/national level influences include the level of community support, level of policy coherence between State and Federal Governments, etc

⁷⁹ International/global level influences include such aspects as the global economic situation, global tourism trends, etc

<u>Component of management</u>	Score	Justification
PLANNING		
PL1....there is a <u>planning system in place that effectively addresses</u> <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Reef Water Quality Protection Plan ▶ Planning system is in place. ▶ Water Quality Improvement Plans in place for 6 of 10 priority catchments. ▶ Comprehensive land use planning not fully focused on protecting water quality. ▶ Limited use of regulatory process. ▶ Multiple plans but not well co-ordinated.
PL2...the <u>planning system for</u> <i>(insert mgt issue)</i> addresses the major risks/threats to the Great Barrier Reef's values	2	<ul style="list-style-type: none"> ▶ Addresses some but not all risks. ▶ Delivery within planning framework lacking. ▶ Rural leasehold land strategy is being rolled out – will help set water quality objectives – good long term initiative but limited short term results ▶ Vegetation clearing regulations.
PL3....the actions for implementation regarding <i>(insert mgt issue)</i> are clearly identified within the <u>plan</u>	2	<ul style="list-style-type: none"> ▶ At a high level. ▶ Identification at farm scale level lacking. ▶ Lots of action but also lots of business as usual. Key areas requiring change are only just now being targeted.
PL4.... <u>clear, measurable and appropriate objectives for management of</u> <i>(insert mgt issue)</i> have been documented	3	<ul style="list-style-type: none"> ▶ Objectives documented in Reef Water Quality protection Plan. ▶ E.g. Mackay Whitsunday is an example of where it is being done well.
PL5....the <u>main stakeholders &/or the local community are effectively engaged</u> in planning to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Increasing engagement. ▶ Rural industries and land managers not fully engaged. ▶ Poor communication of Reef Plan activities to the wider community.
PL6 .. <u>sufficient policy</u> currently exists to effectively address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Policy is in largely in place. ▶ Q'ld planning has limited application to rural lands.
PL7... there is <u>consistency across jurisdictions</u> when planning for <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Poor linkages between Queensland Wetland Program and RWQPP. ▶ Linkages between catchment models, management actions and receiving waters are problematic. ▶ Planning approvals are not consistent in the context of water quality issues. ▶ Some planning is focussed on water quantity rather than quality.
INPUTS	Score	Justification
IN1 ...the current <u>financial resources are adequate and prioritised</u> to meet specific management objectives (refer PL4) to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Considerable resources allocated from various sources. ▶ Allocation of resources to priority areas was based on the best available information at the time. As new information becomes available, priorities may need to change. ▶ \$3M marine monitoring program on the Great Barrier Reef. Monitoring is less well resourced in the catchments. ▶ \$200M committed under Reef Rescue Program (over 5 years). ▶ \$175M committed under Queensland Reef Protection Program (over 5 years).

<u>Component of management</u>		
IN2...the current <u>financial resources</u> are secure (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	4	<ul style="list-style-type: none"> ▶ Commonwealth funding considered secure. ▶ Q'ld Govt and Natural Resource Management body funding not considered secure. ▶ Project specific funding time limited (short term). ▶ Management agency budgets allocated in relevant jurisdictions but subject to changing priorities in forward projections (e.g. efficiency gains). ▶ Work demands growing without commensurate growth in resourcing.
IN3...the current <u>human resources</u> within the managing organisations are <u>adequate</u> to meet specific management objectives (refer to PL4) to address <i>(insert mgt issue)</i>	2	<ul style="list-style-type: none"> ▶ Management agency staff focused on water quality has increased in recent times. ▶ Staff turnover and regional Natural Resource Management funding cycles make retention of quality staff difficult. Insufficient retention of staff means lack of consistency and engagement with land holders. ▶ Commitment to extension work at regional level has been variable with a shift to extension being supplied by Natural Resource Management bodies and other providers. ▶ Staff turnover is high and Natural Resource Management staff are constrained by short term funding arrangements.
IN4...the current <u>human resources</u> within the managing organisations are secure (ongoing, or at least secure for the next 3 years) to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Government agencies have correct skill sets available. ▶ Industry management focused on productivity ahead of water quality and environment. ▶ Good general understanding but disparate and incomplete data sources.
IN5... the <u>right skill sets and expertise</u> are currently available to the managing organisations to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ It is early in the process of gathering socio-economic information on the implications of changing land use practices It is starting to be gathered. ▶ In some WQIPs information is being gathered at a local level. ▶ Information is not currently available in management agencies.
IN6... the necessary <u>biophysical information</u> is currently available to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Where there is a Natural Resource Management Plan or Water Quality Improvement Plan that has a commitment to Indigenous interest, then traditional knowledge is being gathered now. E.g. Terrain, Burdekin, NRW regional planning. ▶ Information is variable along the Great Barrier Reef coast. ▶ Very significant. ▶ Volunteer samplers carry out much of the fieldwork in some monitoring programs. ▶ Annual Marine Monitoring Report.
IN7 .. the necessary <u>socio-economic information</u> is currently available to address <i>(insert mgt issue)</i>	1	
IN8... the necessary <u>traditional (Indigenous) knowledge</u> is currently available to address <i>(insert mgt issue)</i>	3	
IN9... there are additional sources of <u>non-government input</u> (e.g. (e.g. volunteers) contributing to address <i>(insert mgt issue)</i>	3	

Component of management	Score	Justification
PROCESSES		
PR1 ...the main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Industry engagement is generally good. ▶ Landholder engagement is variable. ▶ NGO engagement is strong in conservation sector. ▶ Local government engagement could be improved. ▶ Scientific sector is well engaged.
PR2.... ..the local community is effectively engaged in the ongoing management of (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Volunteers engaged. ▶ Variable and uncertain individual farmer buy-in.
PR3 ... there is a sound governance ⁸⁰ system in place to address(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Real progress in government co-ordination. ▶ Complex planning and legislative environment. ▶ Arrangements currently under review. ▶ Regulatory controls are in place for point sources. ▶ There is a joint government plan to address diffuse sources of water quality
PR4... there is effective performance monitoring to gauge progress towards the objective(s)	2	<ul style="list-style-type: none"> ▶ Virtually no effective monitoring in inshore coastal waters. ▶ Limited catchment monitoring. ▶ No monitoring of land use practice change. ▶ Report card could have more impact if content is enhanced. ▶ Seen as a key failure of Reef Plan.
PR5... appropriate training is available to the managing agencies to address(insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Training is needed to ensure effective translation of monitoring and research into appropriately targeted extension activities (e.g. relative downstream impacts of sediments/nutrients and actions to address them).
PR6... management of....(insert mgt issue) is consistently implemented across the relevant jurisdictions	2	<ul style="list-style-type: none"> ▶ Need identified for alignment of marine monitoring with monitoring as part of local catchment management strategies.
PR7 ... there are effective processes applied to resolve differing views/ conflicts regarding(insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Processes not clearly identified. ▶ Industry engagement a challenge.
PR8... cumulative impacts of activities associated with..... (insert mgt issue) are appropriately considered.	2	<ul style="list-style-type: none"> ▶ Key agricultural cumulative impacts are considered. ▶ Contaminant interactions (toxicity mixtures) and cumulative impacts of other activities are not addressed well. ▶ WQIPs do work to address cumulative impacts by setting clear water quality targets. ▶ The science to fully understand the cumulative impacts is generally lacking.

⁸⁰ Sound governance includes an effective legal system/regulations, integration across government agencies and between different levels of government, effective public education and information, etc

<u>Component of management</u>		
PR9.. the best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding (insert mgt issue)	4	<ul style="list-style-type: none"> ▶ Research good and applied. ▶ Lack of co-ordination and delivery of science into management process inadequate. ▶ Knowledge gaps around production systems.
PR10 .. the best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Water quality improvement plans looking at socio-economic drivers. ▶ Information not well co-ordinated.
PR11 .. the best available traditional (Indigenous) knowledge is applied appropriately to make relevant management decisions regarding (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Where there is a Natural Resource Management Plan or WQIP that has a commitment to Indigenous interest, then traditional knowledge is being applied. E.g. Terrain, Burdekin, NRW regional planning. ▶ Information is variable along the Great Barrier Reef coast.
PR12... relevant national standards are identified and being met regarding (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Water quality standards identified but not being met in all areas (e.g. vulnerable inshore areas). Midshelf and offshore areas are being met for some components.
PR13... relevant international standards are identified and being met regarding (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Water quality standards identified but not being met in all areas (e.g. vulnerable inshore areas). Midshelf and offshore areas are being met for some components.
OUTPUTS	Score	Justification
OP1 ... to date, the actual management program (or activities) have progressed in accordance with the planned work program for (insert mgt issue)	2	<ul style="list-style-type: none"> ▶ Marine Monitoring Annual Report. ▶ Some other reports and Water Quality Improvement Plans developed. ▶ Some problems with timely reporting ▶ Some failures in actions, which are being addressed by recent resource allocations.
OP2 .. implementation of management documents and/or programs relevant to..... (insert mgt issue) have progressed in accordance with timeframes specified in those documents	2	<ul style="list-style-type: none"> ▶ Some products delivered but there have been delays.
OP3... the results (in OP1 above) have achieved their stated management objectives	2	<ul style="list-style-type: none"> ▶ Not in full.
OP4... to date, products or services have been produced in accordance with the stated management objectives for (insert mgt issue)	3	<ul style="list-style-type: none"> ▶ Products and services provided in accordance with Reef Plan. ▶ Some regional plans and Water Quality Improvement Plans developed.
OP5... the knowledge base for (insert mgt issue) within agencies has increased over the last 3-5 years.	3	<ul style="list-style-type: none"> ▶ Increased, but gaps remain. ▶ Nutrient loss at sub catchment level not understood. ▶ High priority areas not well identified in some catchments.
OP6.. the knowledge base for....(insert mgt issue) in the wider community has increased over the last 3-5 years.	3	<ul style="list-style-type: none"> ▶ Increased, especially where Water Quality Improvement Plans are in place. ▶ Community surveys show good knowledge of problem, not necessarily the solutions.

<u>Component of management</u>	Score	Justification
OUTCOMES		
OC1...the relevant managing agencies are to date effectively addressing <i>(insert mgt issue)</i> and moving towards the attainment of the desired outcomes.	3	<ul style="list-style-type: none"> ▶ Slow progress towards common goal. ▶ Major improvement in bureaucratic structures and alignment. ▶ Funding has not flowed. ▶ Limited high level driving.
OC2... the outputs relating to <i>(insert mgt issue)</i> are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	2	<ul style="list-style-type: none"> ▶ Unlikely that goal of halting and reversing water quality decline by 2013 will be achieved to a level that would lead to desired increase in ecosystem health and resilience
OC3... the outputs (refer OP1 & 3) for <i>(insert mgt issue)</i> are reducing the major risks and the threats to the Great Barrier Reef	2	<ul style="list-style-type: none"> ▶ There have been recent significant inputs that may have reduced the major risks. It is too early to validate this via existing monitoring programs.
OC4... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably environmentally sustainable	2	<ul style="list-style-type: none"> ▶ Not demonstrably environmentally sustainable.
OC5... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> is demonstrably economically sustainable	2	<ul style="list-style-type: none"> ▶ Not sustainable. ▶ High value of intact reef recognised in Access Economics Report. ▶ Values jeopardised by poor water quality.
OC6... use of the Great Barrier Reef relating to <i>(insert mgt issue)</i> has demonstrably enhanced community understanding and/or enjoyment	3	<ul style="list-style-type: none"> ▶ High level of volunteer activity must have enhanced understanding in some sections. ▶ Community understanding has increased through monitoring and education activities (e.g. reef ads). ▶ However community enjoyment of the reef may have decreased due to decline in WQ and associated environmental impacts.
OC7 ... the relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address <i>(insert mgt issue)</i>	3	<ul style="list-style-type: none"> ▶ Effective partnerships with Natural Resource Management bodies. ▶ Rural industry bodies have developed effective partnerships with Natural Resource Management bodies.

Appendix 3: Calculation of Grades for each Thematic Area

	Issue	Biodiversity	Climate Change	Coastal Development	Defence	Fishing	Heritage	Tourism	Ports	Recreation (not including fishing)	Research	Traditional Use	Water Quality	Mean	Standard Deviation
CO1	Values	4	4	3	4	3	4	4	4	4	4	3	4	3.75	0.43
CO2	Local threats	4	4	2	4	3	3	4	3	4	3	3	4	3.42	0.64
CO3	Global threats	3	4	2	4	3	4	4	3	4	4	3	4	3.50	0.65
CO4	Regional influences	4	4	2	4	3	3	4	3	4	4	4	4	3.58	0.64
CO5	Global influences	4	4	3	4	4	4	4	4	4	2	4	4	3.75	0.60
CO6	Stakeholders	4	4	4	4	3	4	4	4	4	4	4	4	3.92	0.28
	Mean	3.83	4.00	2.67	4.00	3.17	3.67	4.00	3.50	4.00	3.50	3.50	4.00		

Issue	Biodiversity	Climate Change	Coastal Development	Defence	Fishing	Heritage	Tourism	Ports	Recreation (not including fishing)	Research	Traditional Use	Water Quality	Mean	Standard Deviation
PL1 Planning system	4	4	1	4	3	4	4	3	3	4	3	4	3.42	0.86
PL2 PS addresses threats	3	3	2	4	3	4	4	3	4	3	3	2	3.17	0.69
PL3 Actions clear	3	3	2	4	3	4	4	3	3	4	3	2	3.17	0.69
PL4 Objectives measurable	3	2	2	4	3	3	3	2	3	4	3	3	2.92	0.64
PL5 Stakeholders engaged	3	3	3	4	3	3	4	3	4	4	3	3	3.33	0.47
PL6 Sufficient policy	3	3	2	4	3	4	3	3	3	4	2	4	3.17	0.69
PL7 Consistency jurisdictions	3	3	1	4	3	3	3	3	3	3	3	2	2.83	0.69
Mean	3.14	3.00	1.86	4.00	3.00	3.57	3.57	2.86	3.29	3.71	2.86	2.86		

Issue	Biodiversity	Climate Change	Coastal Development	Defence	Fishing	Heritage	Tourism	Ports	Recreation (not including fishing)	Research	Traditional Use	Water Quality	Mean	Standard Deviation
IN1 Adequate finances	3	4	2	4	3	2	4	3	3	4	2	4	3.17	0.80
IN2 Secure finances	4	4	2	4	3	3	4	3	3	4	2	4	3.33	0.75
IN3 Adequate staff	2	4	2	4	3	2	3	3	3	4	2	2	2.83	0.80
IN4 Secure staff	4	4	3	4	3	3	3	3	3	4	3	3	3.33	0.47
IN5 Right skills	3	4	2	4	3	2	4	3	4	4	3	3	3.25	0.72
IN6 Biophysical information	3	3	3	4	2	4	4	4	4	4	2	3	3.33	0.75
IN7 Socioeconomic information	2	2	3		2	2	3	4	3	3	2	1	2.45	0.78
IN8 Indigenous knowledge	2	2	2	3	1	3	2	4	2	3	2	3	2.42	0.76
IN9 Volunteer inputs	4	4	3		3	3	4		4	3	2	3	3.30	0.64
Mean	3.00	3.44	2.44	3.86	2.56	2.67	3.44	3.38	3.22	3.67	2.22	2.89		

Issue	Biodiversity	Climate Change	Coastal Development	Defence	Fishing	Heritage	Tourism	Ports	Recreation (not including fishing)	Research	Traditional Use	Water Quality	Mean	Standard Deviation
PR1 Stakeholders engaged	3	4	3	4	4	4	4	4	4	4	3	3	3.67	0.47
PR2 Local community engaged	3	4	3	4	3	3	4	3	4	3	2	3	3.25	0.60
PR3 Sound governance	4	3	2	4	4	3	4	4	4	4	3	3	3.50	0.65
PR4 Performance monitoring	3	3	2	4	2	3	3	3	3	4	2	2	2.83	0.69
PR5 Training	3	3	3	4	4	2	3	4	3	4	3	2	3.17	0.69
PR6 Consistent implementation	3	3	2	4	3	3	4	3	4	4	3	2	3.17	0.69
PR7 Conflict resolution	4	2	3	4	3	3	4	4	3	4	2	3	3.25	0.72
PR8 Cumulative impacts	2	2	1	4	2	2	3	2	3	2	3	2	2.33	0.75
PR9 Biophysical info applied	4	4	3	4	2	4	4	3	3	4	4	4	3.58	0.64
PR10 Socioeconomic info applied	3	2	3		2	2	3	3	3	3	2	3	2.64	0.48
PR11 Indigenous knowledge applied	2	2	2	3	1	3	2	3	3	3	3	3	2.50	0.65
PR12 National standards	4	4	2	4	4	3	4	4	4	4	4	2	3.58	0.76
PR13 International standards	4	4	2	4	3	4	4	4		4	3	2	3.45	0.78
Mean	3.23	3.08	2.38	3.92	2.85	3.00	3.54	3.38	3.42	3.62	2.85	2.62		

Issue	Biodiversity	Climate Change	Coastal Development	Defence	Fishing	Heritage	Tourism	Ports	Recreation (not including fishing)	Research	Traditional Use	Water Quality	Mean	Standard Deviation
OP1	3	3	2	4	3	3	4	3	3	4	3	2	3.08	0.64
OP2	2	3	2	4	2	3	3	3	3	3	3	2	2.75	0.60
OP3	2	2	2	3	2	3	3		3	4	3	2	2.64	0.64
OP4	3	3	2	4	4	3	4	4	4	4	3	3	3.42	0.64
OP5	4	4	3	4	3	4	4	3	3	4	4	3	3.58	0.49
OP6	4	4	3	4	3	3	4	3	3	4	2	3	3.33	0.62
Mean	3.00	3.17	2.33	3.83	2.83	3.17	3.67	3.20	3.17	3.83	3.00	2.50		

Issue	Biodiversity	Climate Change	Coastal Development	Defence	Fishing	Heritage	Tourism	Ports	Recreation (not including fishing)	Research	Traditional Use	Water Quality	Mean	Standard Deviation
OC1 Outcomes being achieved	3	2	2	4	2	3	4	3	3	4	3	3	3.00	0.71
OC2 Values protected	3	2	2	4	2	3	3	4	3	4	3	2	2.92	0.76
OC3 Threats reduced	3	1	1	4	3	4	4	3	3	4	3	2	2.92	1.04
OC4 Environmentally sustainable	3	1	1	4	3	3	3	3	3	4	2	2	2.67	0.94
OC5 Economically sustainable	3	1	3		2		4	4	3		2	2	2.67	0.94
OC6 Community understanding	4	3	3		3	3	4	4	4	4	3	3	3.45	0.50
OC7 Effective partnerships	4	4	3	4	3	3	4	4	4	4	3	3	3.58	0.49
Mean	3.29	2.00	2.14	4.00	2.57	3.17	3.71	3.57	3.29	4.00	2.71	2.43		