Australian Government

STATE PARTY REPORT

ON THE STATE OF CONSERVATION
OF THE
GREAT BARRIER REEF WORLD HERITAGE AREA
(AUSTRALIA)

PROPERTY ID N154

IN RESPONSE TO

WORLD HERITAGE COMMITTEE DECISION
WHC 35 COM 7B.10

FOR SUBMISSION BY
1 FEBRUARY 2012

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State party report on the state of conservation of the Great Barrier Reef World Heritage Area

Executive summary

The Great Barrier Reef (GBR) is an iconic part of Australia, is recognised internationally, and is something all Australians want to protect for future generations.

The GBR and surrounding catchments support a range of industries that generate more than $40 billion in economic activity every year. The region is critical to the health of the Queensland economy and to the Australian economy as a whole.

Australia is proud of its management of the GBR and continues to uphold the highest of standards for ongoing management.

The Australian and Queensland governments remain committed to ensuring the GBR is passed on to future generations retaining the values for which it was declared a World Heritage Area, and that it continues to be one of the best known and iconic marine protected areas in the world: an outstanding part of Australia's heritage, one that is managed by Australians for the benefit of the whole world.

There has been an enduring commitment to joint management of the GBR by the Queensland and Australian governments since the 1970s and an ongoing spirit of collaboration and adaptive management that takes account of contemporary issues. In keeping with this commitment, enormous management improvements have been made since its listing, which are highlighted in this report. At the cornerstone of management is a comprehensive and widely-acclaimed zoning plan for the marine park, which covers 99 per cent of the World Heritage Area and works to protect the biodiversity of the area from direct impacts of use of the marine park's resources. It is supported by a network of island national parks and effective field management.

The GBR Outlook Report, developed by the Great Barrier Reef Marine Park Authority (GBRMPA) in 2009, highlighted these achievements but also showed that there are still challenges in managing such a large and complex system. It highlighted that there are risks to the long-term outlook of the GBR from climate change, declining water quality, coastal development and its impact on coastal ecosystems and some residual fishing activities. In responding to this outlook, the Australian and Queensland governments committed to address these issues and in particular to look for opportunities to undertake strategic assessments to address coastal development pressures. The governments have implemented a major initiative to significantly improve water quality and are putting in place a robust coastal management framework to protect high value coastal ecosystems and new shipping rules to minimise the risk of shipping incidents in the World Heritage Area.

As a result of the actions taken to achieve sustainable management of the GBR and adjacent catchments, the Australian and Queensland governments are confident that sustainable development in the coastal zone can be accommodated to help support North Queensland's regional economy and communities. While there are tremendous opportunities in the coastal zone, Australia is committed to ensuring development only occurs when it is undertaken in a manner that is consistent with protecting the world heritage values of the GBR and other important terrestrial ecosystems.

Australia regrets that the World Heritage Committee has expressed concern about management of the GBR World Heritage Area and is pleased to welcome a reactive monitoring mission from the World Heritage Centre and International Union for Conservation of Nature in early 2012. The mission presents an opportunity to demonstrate the diversity, scale and complexity of sustainability issues in the GBR coastal region and showcase management achievements over recent years and Australia's ongoing commitment to protecting the World Heritage Area.

Both the Queensland and Australian governments have rigorous development assessment processes embedded in legislation that already takes into account world heritage values. However, Australia is committed to continuous improvement and has a strong philosophy of adaptive management. As a result, the Australian and Queensland governments have committed to a comprehensive strategic assessment to ensure planning systems are achieving this outcome in practice and fully take account of cumulative impacts of development on the World Heritage Area and are based on the best available science.

Snapshot of recent management achievements in the GBR World Heritage Area

- The GBR Marine Park Zoning Plan was implemented in July 2004 (and the complementary Queensland Coast Marine Park zoning plan in November 2004) to ensure that the range of biodiversity within the GBR is comprehensively protected. Together they define the activities that can occur in each location, protect the marine environment and separate potentially conflicting activities. The zoning plans comprise the world's largest network of no-take zones (33 per cent of the marine park).
- Ongoing joint investment in field management and enforcement of the zoning plans and regulations have been delivered by a range of Australian and Queensland government agencies.
- More than 300 islands have been declared national parks, with a 50 per cent increase in the number of islands that have been declared national parks since 1981.
- Significant improvements in fisheries management have been made, with major reductions in the extent of trawling and the numbers of trawlers permitted in the GBRWHA, and innovations in fishing gear technology that minimise interactions with protected species and reduce by-catch.
- Government investments of almost half a billion dollars have assisted farmers and other land managers to adopt management practices that reduce the level of sediment entering the GBR Lagoon, through incentives provided to farmers via the Reef Rescue program, and improved regulation to improve how fertilisers and pesticides are managed in catchments adjacent to the GBR. Broadscale clearing was ended in Queensland in 2006, and has resulted in additional permanent protection for 70 million hectares of woody vegetation in adjacent catchments along with reduced sediment runoff.

- A robust coastal management framework has been established that ensures sustainable development in the coastal zone adjacent to the GBR. It contains significant initiatives by the Queensland Government, including:
  - a State Coastal Plan that prevents new development footprints in coastal areas of high ecological significance;
  - a Wetlands State Planning Policy that protects high value wetlands;
  - ongoing development of statutory land use regional plans that outline zoning for urban and industrial development, among other things; and
  - implementation of a biodiversity offsets policy that identifies how unavoidable impacts are to be offset.
- Significant advances have been made in addressing the issue of climate change broadly, through implementation of adaptation strategies for the GBR and policies at both national and state levels to increase resilience in the marine ecosystem.
- Shipping rules have been introduced in the GBR that reduce the risk of groundings, including a compulsory requirement for ships to have pilots in high-risk areas and state-of-the-art ship tracking technology that allows for monitoring and communication with ships.
- Formal agreements with Traditional Owners about their use of the marine parks have been established.
- Increased community stewardship of the marine parks is encouraged through the Reef Guardian councils, schools, farmers and fishers programs.

Key acronyms

ACIUCN	Australian Committee for the International Union for Conservation of Nature
EIS	environmental impact statement
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
DEWHA	The (Commonwealth) Department of Environment, Water, Heritage and the Arts; today known as DSEWPaC (see below)
FMP	field management program
GBR	Great Barrier Reef
GBRMPA	Great Barrier Reef Marine Park Authority
GBRWHA	Great Barrier Reef World Heritage Area
HES	high ecological significance
IUCN	International Union for Conservation of Nature
LNG	liquefied natural gas
Marine Parks	The (Commonwealth) Great Barrier Reef Marine Park and the (Queensland) Great Barrier Reef Coast Marine Park are managed in a complementary way and collectively termed ‘marine parks’
QPWS	Queensland Parks and Wildlife Service
DSEWPaC	Australian Government Department of Sustainability, Environment, Water, Population and Communities
State Party	Australia
Queensland	The State of Queensland

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Introduction

Background

Australia's Great Barrier Reef (GBR), the largest coral reef ecosystem on Earth, is home to an amazing diversity of plants, animals and habitats. In 1975 this globally significant area was recognised in law and subsequently declared as a multiple-use marine park extending more than 2300 kilometres along the Queensland coast and covering 344 400 square kilometres (see Map 1). The legislation allows reasonable uses to occur within the Marine Park but prohibits any operations for the recovery of minerals.[1]

In 1981 the area was listed as a world heritage property for its Outstanding Universal Value. The GBR is the only coral reef ecosystem that has qualified for World Heritage listing under all four natural criteria, to:[2]

i. be outstanding examples representing the major stages of the Earth's evolutionary history;
ii. be outstanding examples representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment;
iii. contain unique, rare or superlative natural phenomena, formations or features or areas of exceptional natural beauty, such as superlative examples of the most important ecosystems to man; and
iv. contain habitats where populations of rare or endangered species of plants and animals still survive

The property includes remarkable biodiversity, from coastal estuarine systems, shallow inshore fringing reefs and seagrass beds to deep oceanic waters more than 250 kilometres offshore. Coral reefs comprise about seven per cent of the Great Barrier Reef World Heritage Area (GBRWHA).

Approximately 70 Aboriginal and Torres Strait Islander Traditional Owner groups maintain strong connections to sea country and continue cultural practices within the GBR.

The GBRWHA has since its inscription been managed as a multiple-use area that supports a range of different industries, while at the same time maintaining its world heritage values.

As well as being an international icon, the GBR region is critical to the health of the Queensland economy and to the Australian economy as a whole. The GBR and adjacent catchments support diverse industries that generate more than $40 billion in economic activity every year.[3] The GBR coast is a fast-growing area where about 1.58 million people are expected to be living by 2026.

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1 The term 'minerals' is defined as meaning "minerals in any form, whether solid, liquid or gaseous and whether organic or inorganic" and is taken to include sand, limestone, oil shale and petroleum in addition to minerals obtained from within sea water itself

2 These refer to the criteria for which the property was listed in 1981 – the wording and numbering of these four criteria has since changed.

3 Oxford Economics (2009) *Valuing the effects of Great Barrier Reef coral bleaching. Report to Great Barrier Reef Foundation:* www.barrierreef.org/Portals/0/Oxford_report/GBRF_OxfordReport_Final_WEB.pdf

The coal industry alone exports $33.5 billion through Queensland ports, and LNG is projected to export a further $3.2 billion. Currently 33 976 people are directly employed by the coal industry, and LNG is projected to support an additional 18 000 jobs. Shipping is vital to this economic activity and the majority of Queensland's commodity exports are shipped through four major ports and six other trading ports along the GBR coast. The tourism industry generates well over $5 billion per year to the Queensland economy and more than 54 000 jobs directly.

Beef, sugar cane and horticulture industries also contribute approximately $3.7 billion a year in gross value of production and support significant regional employment.[4]

Ten commercial fisheries operate in the GBR, contributing $140 million to the economy each year. The GBR also includes some of Australia's important military training areas and significant research investments.

4 *Reef Water Quality Protection Plan 2009*: http://www.environment.gov.au/coasts/pollution/reef/

Map 1: The extent of the GBRWHA and GBR Marine Park

Contemporary management of the World Heritage Area

Both the Australian and Queensland governments have direct legislative responsibilities within the GBRWHA. The effective management system is a testament to the strong joint management by the two governments since the late 1970s. The ongoing spirit of collaboration and adaptive management has the flexibility to take account of contemporary issues.

Managing the GBR is complex and requires balancing reasonable human use with the need to maintain the area's natural and cultural integrity. It is a huge task because of the size and diversity of the GBR ecosystem; its economic importance; local, state, national and international political interests; and jurisdictional complexities. Further factors must be considered when setting management and policy frameworks, such as the close proximity of rural and urban populations to the coast, the range of users and interest groups whose use patterns frequently compete with each other, and the ecological diversity of the region.

A variety of management strategies are in place to protect the GBRWHA including a comprehensive multiple-use zoning system that provides protection of biodiversity, while allowing a variety of other sustainable uses to occur.

Under Australia's constitution, regulation of natural resource management and environment protection on land are primarily the responsibility of state governments (in this case, Queensland). However, protection for matters of national environmental significance, including world and national heritage properties and their values, is afforded through national regulation.

Despite the complexities outlined above, the integrated governance and management model for the GBR that has been functioning over the past 36 years has proven to be effective and successful. Indeed, it is widely regarded as 'best practice' by marine and coastal managers around the world –the GBR has been cited as the *'the largest and best-managed reef in the world' and the 'current gold standard of ecosystem-based management in the oceans'.*[5]

Considerable management improvements have been made since the World Heritage listing in 1981, and particularly in the past decade. Many of these management arrangements recognise the multiple uses of the GBR and aim to achieve an appropriate balance between these uses and maintaining a high level of protection for the World Heritage Area.

Previous reporting to the World Heritage Committee

The World Heritage Committee has previously requested 'State of Conservation' reports for various issues in the GBR. These have included reports on the Cape Tribulation road (1985), a major resort proposal (1994); and concerns about 'opening some reserves to fishing and development' (1996). In 1999 a number of issues were raised in a report by IUCN. This included 29 recommendations that were addressed by Australia in a 15 page 'Framework for Management for the GBRWHA'. This framework was accepted by the Committee in 2002 as a basis for monitoring the implementation of the recommendations.

Australia has also provided two periodic reports on the GBRWHA to the World Heritage Committee (2002 and 2010).

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5 Pandolfi, J.M et al. (2003). 'Are US coral reefs on the slippery slope to slime?' in Science, 307 (5617): 1725-26. Ruckelshaus, M., T. et al. (2008). 'Marine Ecosystem-based Management in Practice: Scientific and Governance Challenges' In BioScience, 58 (1): 53-63.

Purpose of this report

This State Party Report has been prepared in response to the World Heritage Committee's decision 35 COM 7B.10, as requested in paragraph seven of that decision, and in correspondence of 20 July 2011 from Mr Kishore Rao, Director of the World Heritage Centre, to the State Party.

The format stipulated by the World Heritage Centre for preparing the State Party's report requires the following.

1. A response from the State Party to the World Heritage Committee's decision, paragraph by paragraph.
2. Other current conservation issues identified by the State Party.
3. In conformity with paragraph 172 of the *Operational Guidelines for the Implementation of the World Heritage Convention*, to inform the Committee of any intention 'to undertake or to authorise ... major restorations or new constructions which may affect the Outstanding Universal Value' of the Great Barrier Reef.

Outline

Chapter 1 refers to each paragraph of the Committee's decision, outlining:

- the State Party's response to the Committee's concerns about the approval of liquefied natural gas processing and port facilities on Curtis Island;
- progress to date on a comprehensive strategic assessment for the Great Barrier Reef World Heritage Area (GBRWHA);
- the State Party's development of a procedure to ensure that the World Heritage Centre is regularly provided with information about proposed developments that might impact the world heritage values of any of Australia's world heritage properties, in accordance with paragraph 172 of the *Operational Guidelines*; and
- the invitation by the State Party for a monitoring mission to examine the state of conservation of the GBRWHA in detail and to enable the World Heritage Centre and the International Union for the Conservation of Nature (IUCN) to provide expert input to the strategic planning processes currently underway.

Chapter 2 is in two parts.

- The first part gives an overview of the management arrangements that are in place to protect the world heritage values of the GBRWHA, including a summary of key changes in management from the time of listing to the present.
- The second part updates the Great Barrier Reef Outlook Report 2009 and provides information about emerging conservation issues faced by the GBR and the management responses.

Chapter 3 identifies proposed developments currently being assessed under Australia's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for potential impacts on the world heritage values of the GBRWHA, both within and outside the boundary of the property. It also provides links to further documentation.

Chapter 1

Response from the State Party to the World Heritage Committee decision

World Heritage Committee Decision 35 COM 7B.10

The World Heritage Committee,

1. *Having examined* Document WHC-11/35.COM/7B. Add,
2. *Notes with extreme concern* the approval of Liquefied Natural Gas processing and port facilities on Curtis Island within the property;
3. *Urges* the State Party to undertake a comprehensive strategic assessment of the entire property, identifying planned and potential future development that could impact the Outstanding Universal Value to enable a long-term plan for sustainable development that will protect the Outstanding Universal Value of the property;
4. *Regrets* that the State Party did not inform the Committee as per paragraph 172 of the *Operational Guidelines* and *requests* the State Party to report, in accordance with paragraph 172, its intention to undertake or to authorize any new development that may affect the Outstanding Universal Value of the property before making decisions that would be difficult to reverse;
5. *Also requests* the State Party to invite a World Heritage Centre/IUCN reactive monitoring mission as soon as possible to consider the state of conservation of the property as a whole, and to contribute to the strategic assessment process;
6. *Welcomes* the State Party's commitment to improve the property's resilience and its ability to adapt to climate change and other forms of environmental degradation following the extreme weather events;
7. *Further requests* the State Party to submit to the World Heritage Centre, by **1 February 2012**, a report on the course of action taken in response to this decision for examination by the World Heritage Committee at its 36th session in 2012.

Response to paragraph (2) Curtis Island

The Australian Government regrets the World Heritage Committee's expression of extreme concern with regard to approval of liquefied natural gas (LNG) processing and port facilities on Curtis Island.

The State Party's position is that the Outstanding Universal Value of the GBRWHA has not been compromised by the decision to approve LNG processing facilities on Curtis Island. The reasons for this position are stated below.

Background

Three contiguous proposals for the development of LNG processing facilities on the southern edge of Curtis Island were approved, only after a rigorous assessment process under both Queensland and Commonwealth legislation. The proposals involved several activities within the GBRWHA including the clearing of vegetation and construction on Curtis Island, and dredging and construction of shipping facilities in Gladstone Harbour.

The facilities at the Curtis Island precinct will liquefy coal seam gas piped from onshore gas fields in southern and central Queensland to enable it to be transferred to ships for export. The major components of the LNG processing plants on Curtis Island include gas processing facilities to remove impurities and refrigerate the coal seam gas; storage tanks; and plant infrastructure and utilities. Each LNG processing plant will have a materials off-loading facility which will also serve as a ferry terminal for the transfer of construction materials and heavy equipment to the project site; a jetty and loading berths to transfer LNG product to tankers for shipping; and temporary facilities including a temporary workers' accommodation facility.

The Curtis Island Industry Precinct

Curtis Island is the largest of the 600 continental islands within the GBR with a total area of 46 600 hectares. The Curtis Island Industry Precinct, in which the LNG facilities are to be constructed, is approximately 1500 hectares in area (see Map 2). This is less than three per cent of the total area of Curtis Island and is equivalent to less than 0.004 per cent of the GBRWHA.

Curtis Island is the site of a permanent settlement, and has an existing ferry service and landing. The island has been grazed by cattle over more than 100 years, and some areas have been cleared.

The precinct site on Curtis Island is adjacent to the heavily industrialised Port of Gladstone. Immediately behind the Gladstone shoreline on the mainland are several other large industrial plants. Not all of the precinct will be cleared as it incorporates a naturally vegetated ridge area, which will be left intact.

Gladstone Harbour has provided sheltered deepwater access for shipping since the 1850s. Access to and within the naturally deepwater areas of the Harbour has been facilitated by capital dredging of the main access route, South Channel, since the 1950s, with major enhancements of channel depths for shipping (to a depth of approximately 16 metres below datum) in the 1980s and 1990s. Gladstone is one of Queensland's major bulk handling ports, with its principle exports being coal, aluminium and cement.

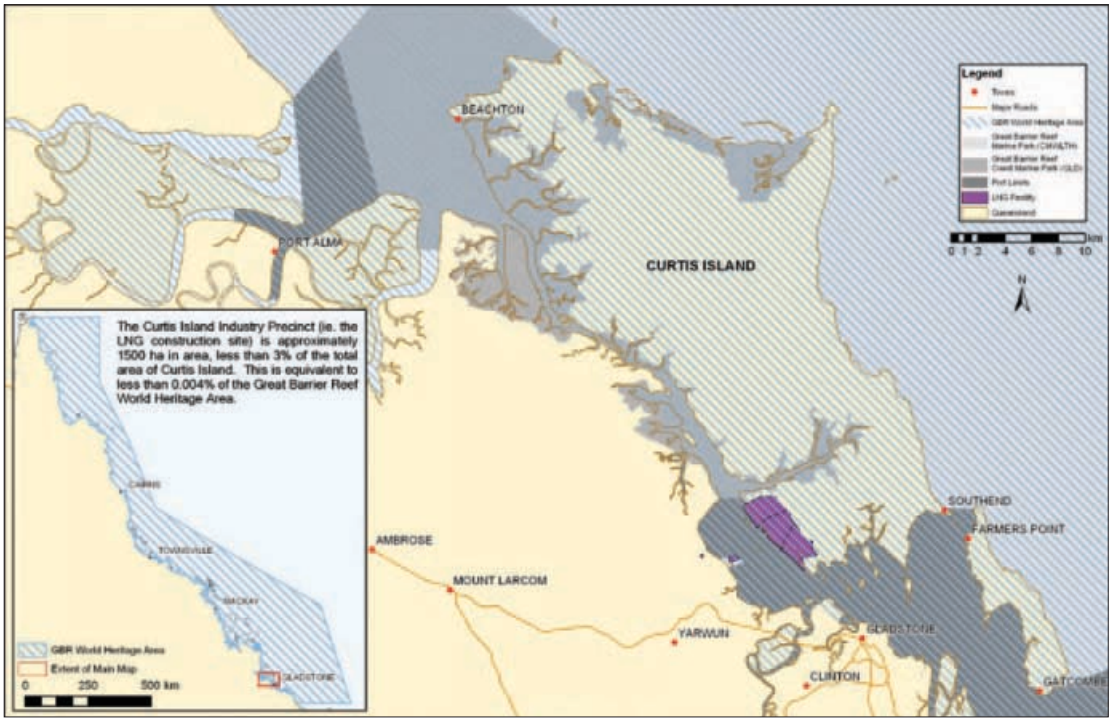
The assessment process

An open assessment of these projects was undertaken involving both the Queensland and Australian governments, including the release of a series of public documents.

1. Publication online of the current proposals and those previously assessed.
2. Public consultation on draft Terms of Reference for an environmental impact statement (EIS).
3. Publication of the EIS and a legislated public consultation period.
4. Publication of the Queensland government's assessment report.
5. Publication of approval documentation including conditions imposed.

Each project was assessed by an EIS which took into account:

- the impact of the LNG developments, including specifically on world heritage values;
- the impact on other 'matters of national environment significance' as defined in Australian law, such as threatened and migratory species;
- the cumulative impacts of the LNG facilities and other nearby proposed developments;
- the impact on the immediate marine environment from dredging in the port;
- consideration of alternative locations for LNG facilities; and
- the types of management plans that would be implemented and the types of offsets that may be considered.



Map 2: Curtis Island Industry Precinct – site of LNG facilities

A thorough assessment of the proposed Curtis Island LNG projects, which spanned over two years, concluded that the impacts on the GBR's world heritage values would not be unacceptable under national environment law if the projects were implemented in accordance with extensive, detailed and rigorous conditions. The conditions include measures to minimise impacts on water quality, to minimise light and noise, reduce vessel speeds and place limits on vessel movements, mandate use of marine mammal observers and implement quarantine measures to control weeds and feral animals. Proponents are also required to make substantial contributions to maintaining the values of the World Heritage Area, including financial contributions to support field management and environmental research within the GBRWHA.

The Queensland Government imposed more than 1800 conditions on the three approved LNG projects and the Western Basin Dredging and Disposal project. Environmental conditions made up the vast majority of the conditions, including requirements for a dredge management plan, a water quality management plan, a flora and fauna management plan, an acid sulfate soils management plan and an offsets package. Key elements of the management plans, particularly those focusing on water quality and seagrass impacts, are overseen by a technical reference panel. These conditions and state assessment documentation are available at: http://www.deedi.qld.gov.au/cg/assessments-and-approvals.html

The complete set of Commonwealth conditions for these projects can be found on the website for the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) at: http://www.environment.gov.au/epbc/notices/gladstone.html

The projects are subject to strict ongoing monitoring of their environmental performance and compliance with the conditions of approval.

Taking into account the strict conditioning of the projects, the State Party considers that the Outstanding Universal Value of the GBRWHA has not been compromised by the decision to approve LNG processing facilities on Curtis Island.

Response to paragraph (3) Comprehensive strategic assessment

Strategic assessment under Australia's environmental legislation

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is the Australian Government's overarching environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and national and world heritage places - defined in the Act as 'matters of national environmental significance'.

The EPBC Act offers two pathways to assess actions that are likely to have a significant impact on matters of national environmental significance. The first is project-by-project assessment. The second is a strategic assessment process.

Strategic assessments offer the opportunity to consider a series of new proposals or developments (actions) over a much larger scale and timeframe than is possible using a project-by-project approach, even if the developer is currently not known. Strategic assessments enable:

- early consideration of matters of national environmental significance in planning processes;
- capacity to achieve significant environmental outcomes including addressing cumulative impacts at a broader scale;
- greater certainty to the local communities and developers over future development; and
- reduced administrative burden for proponents taking actions consistent with a policy, plan or program approved under a strategic assessment.

Guided by a set of Terms of Reference, a strategic assessment can take into account:

- how the policy, plan or program that is subject to the assessment gives effect to relevant national, state and local plans, policies or programs and their inherent environmental protection objectives and/or actions;
- how, if appropriate, state and local plans, policies or programs can be modified or updated to achieve their objectives in the area being assessed;
- matters of national environmental significance, biodiversity conservation, and ecologically sustainable development objectives;
- how uncertainty is addressed and environmental risk is managed; and
- adaptive implementation and environmental monitoring.

Strategic assessments are undertaken by the Australian Government in partnership with the agency or organisation responsible for implementing the policy, plan or program that is being assessed (for example, a state or territory government, local council, industry group or organisation). They are designed to be a collaborative process that delivers positive outcomes for both parties. Entering into a strategic assessment offers the potential to deal with cumulative impacts on matters of national environmental significance and to look for both conservation and planning outcomes at a much larger scale than can be achieved through project-by-project assessments.

Further information is available at: www.environment.gov.au/epbc/assessments/strategic.html.

Comprehensive strategic assessment of the GBRWHA

The GBR Ministerial Council (comprising Commonwealth and State ministers with jurisdictional responsibilities for the GBRWHA) agreed in principle to undertake strategic assessments pursuant to the national environmental law (EPBC Act) in August 2011. The Queensland Cabinet agreed to the assessment process in late November 2011. Agreements to meet the legal requirements of the EPBC Act are being finalised so that the assessment process can begin.

The strategic assessment of the GBRWHA will be by far the largest and most comprehensive strategic assessment undertaken in Australia due to its spatial scale, number of different land uses and strong connection between the terrestrial and marine systems. In comparison, other strategic assessments have been smaller in spatial scale and have focused on single issues such as urban development (for instance in outer Melbourne). As a result of this complexity, the Australian and Queensland governments are working collaboratively on how the assessment should best be undertaken to ensure it achieves the desired outcomes in a reasonable timeframe.

On the basis of these preliminary discussions, the strategic assessment is likely to be made up of a number of components. These are:

- a strategic assessment under the EPBC Act for the **marine ecosystem and GBRWHA islands**, including management of the GBR Marine Park and islands as well as catchment programs to improve water quality;
- a strategic assessment under the EPBC Act of the **GBR coastal zone** (terrestrial and marine), including Queensland's planning and assessment framework; and
- consideration of regional sustainability approaches to assess the validity of Queensland planning policies and their ability to deliver desirable social, economic and environmental outcomes for communities adjacent to the GBR. This may include:
  - analysing the Mackay, Isaac and Whitsunday Regional Plan 2011-2031; or
  - the development of statutory regional plans for Central and Northern Queensland; or
  - working with local governments in regional centres to develop regional sustainability plans – a Commonwealth led initiative to manage population growth. These regional sustainability plans may also undergo separate strategic assessment under the EPBC Act.

The strategic assessment/s will consider the following matters, which are defined as 'matters of national environmental significance' under the EPBC Act:

- The GBR Marine Park; world heritage properties; national heritage places; wetlands of international importance (Ramsar wetlands); listed threatened species and ecological communities; migratory species and Commonwealth marine areas.

The entire GBRWHA will be captured by the assessments. They will focus on management, planning and development assessment frameworks where decisions under these frameworks may impact on the Outstanding Universal Value of the GBRWHA and other relevant matters of national environmental significance under the Act.

The strategic assessments will build upon the existing framework and scientific understanding including the GBR Outlook Report and Water Quality Report Cards. New science may need to be developed during the strategic assessment in order to integrate the existing knowledge and assess the cumulative impacts of development.

The strategic assessment processes for the GBR Marine Park and catchments and the Queensland coastal planning and development framework will assess:

- where planned and potential future development may occur in and adjacent to the GBRWHA;
- how planned and potential future development can be undertaken by identifying minimum standards for protection of the values; and
- how policies, plans and management measures will protect the GBRWHA's Outstanding Universal Value and improve the property's resilience in the face of climate change and an expanding economy.

Process for undertaking the comprehensive strategic assessment of the GBRWHA

The comprehensive strategic assessment will be undertaken by a range of different agencies across different jurisdictions, with overall coordination by the Australian Government. It is anticipated that the primary strategic assessment process will take 18 months to two years to complete, with outcomes to be implemented on an ongoing basis.

The first step of a strategic assessment is public consultation on the draft terms of reference for the assessment. The Australian Government welcomes the involvement in the strategic assessment process of delegates from the IUCN and World Heritage Centre during the reactive monitoring mission in March 2012. The State Party anticipates that this will involve discussion of the terms of reference and scope of the assessments before they are finalised.

Great Barrier Reef Marine Park and catchments EPBC strategic assessment

The Great Barrier Reef Marine Park Authority (GBRMPA), in consultation with DSEWPaC and the Queensland Government, will prepare a report detailing its zoning plan and management framework, including statutory and non-statutory tools and programs to protect the GBR. This report will also include the management arrangements for Commonwealth islands and Commonwealth initiatives aimed at improving water quality by improving catchment management. A strategic impact assessment report will be prepared outlining the impacts on the GBR and matters of national environmental significance, and the management of impacts arising from the current policy and management arrangements. The report on planning and management along with the impact assessment report will be released for public comment. After the reports are finalised the Australian Government, through the environment minister, may endorse and approve sustainable development actions in accordance with the reports.

Queensland coastal planning and development framework EPBC strategic assessment

The Queensland Government, in consultation with DSEWPaC, will prepare a report on the GBR coastal zone planning and assessment framework. A strategic impact assessment report will be prepared outlining the impacts on the GBR resulting from policy and planning arrangements. The report on policy, planning and development along with the impact assessment report will be released for public comment. After the reports are finalised, the minister may endorse and approve sustainable development actions in accordance with the reports.

Regional approaches

Regional approaches to sustainable management will be examined to ensure that the broader coastal management framework is effective in terms of protecting world heritage values and other matters of national environmental significance. This is likely to be an iterative process, developed and refined in stages, supported by evolving science.

The Mackay, Isaac and Whitsunday Regional Plan 2011-2031 will be used as a demonstration of how world heritage values and other matters of national environmental significance have been considered in the regional planning framework. In addition to this, the Queensland

Government will continue to roll out statutory regional plans across Queensland to fill the two remaining gaps, Central and North Queensland.

Regional sustainability plans may also be developed by the Australian Government (DSEWPaC) in consultation with Queensland and local governments using national sustainability indicators and local community input. Extensive stakeholder engagement activities would be undertaken in developing regional sustainability plans in addition to statutory public consultation periods under the strategic assessment process.

Progress to date

- On 12 August 2011 the Great Barrier Reef Ministerial Council '*agreed to officials developing an approach for undertaking a comprehensive strategic assessment to protect the Great Barrier Reef from impacts of coastal development utilising Queensland legislation and policy mechanisms, directions in the National Ports Strategy, the strategic assessment provisions under the Environment Protection and Biodiversity Conservation Act 1999, and the recently announced Sustainable Regional Development initiative.*'
- Initial scoping material to support the comprehensive strategic assessments of the entire GBR property has been agreed.
- Australia is currently formalising project planning documentation to clearly outline milestones, deliverable timeframes, consultation and opportunities for engagement. Australia proposes to finalise this documentation after input is offered by the reactive monitoring mission.

Next steps

- Finalisation of the formal strategic assessment agreements between jurisdictions and draft terms of reference (early 2012)
- Public consultation on draft terms of reference (early 2012)
- Terms of reference finalised (mid 2012)
- Public consultation on strategic impact assessments (early 2013)
- Finalisation of strategic assessments (end 2013)

Response to paragraph (4) Reporting in accordance with paragraph 172

In response to the concerns raised by the World Heritage Committee, Australia has developed an administrative procedure to ensure that the Committee is informed in a consistent and timely manner of any proposed developments that may affect the Outstanding Universal Value of any of Australia's world heritage properties. The World Heritage Centre will be notified on a quarterly basis of assessments of major projects that have been identified as likely to have significant impacts on a property's world heritage values (referred to under the EPBC Act as 'controlled actions') including the GBRWHA. Information will be provided early in the assessment process, in line with the requirements of paragraph 172 of the *Operational Guidelines for the Implementation of the World Heritage Convention.*

Chapter 3 of this report contains a summary of all current proposed developments that have been identified as likely to have a significant impact on the Outstanding Universal Value of

the GBRWHA and are currently being assessed as controlled actions under the EPBC Act. This information was also sent to the World Heritage Centre by the Australian Government in correspondence of 31 October 2011.

Response to paragraph (5) Reactive monitoring mission

The Australian Government has invited a joint World Heritage Centre and IUCN reactive monitoring mission to the property and will liaise with the World Heritage Centre and IUCN to coordinate the mission.

The Australian Government has been advised that the mission will take place between 6 and 14 March 2012. The visit will help to highlight not only the pristine and iconic areas of the GBR, but also the adjacent urban, industrial and port areas that are fundamental to Queensland and Australia's future economic and community development. Both the Australian and Queensland governments are keen to showcase the 'best practice' management of the GBRWHA and adjacent catchments. Opportunities will be provided for the mission assessors to meet with leading Australian scientists, who contribute their valuable knowledge to managing the GBR and the surrounding environments. These scientists will provide an independent perspective on the status of risks to the GBR. The mission will also meet with community representatives and local governments involved in protecting the GBR.

The mission will present an opportunity to demonstrate the diversity, scale and complexity of sustainability issues in the GBR and adjacent areas, and showcase our world-leading management strategies.

The Australian Government will work in close collaboration with the Queensland Government and the Australian Committee for IUCN (ACIUCN) to plan and coordinate the mission, to ensure the visit meets the assessors' objectives.

Response to paragraph (6) Resilience of the property

Australia continues to invest in monitoring and protection of the GBRWHA to increase its resilience, while ensuring sustainable commercial and non-commercial uses and other industries can continue. Further details about current conservation issues, including issues arising from recent extreme weather events, as well as an overview of key changes to the management and protection of the property from the time of its listing in 1981 to the present, are provided in Chapter 2 of this report.

Chapter 2

Summary of management arrangements, highlighting key examples of adaptive management from 1981 to the present

Introduction

The first part of Chapter 2 provides an overview of current management of the Great Barrier Reef World Heritage Area (GBRWHA).

Management of the property is periodically reviewed to ensure ongoing protection of the Outstanding Universal Value of the GBRWHA. This occurs in various ways including the Great Barrier Reef Outlook Report (available online at: http://www.gbrmpa.gov.au/outlook-for-the-reef/great-barrier-reef-outlook-report)[6] and the World Heritage Periodic Reporting process.

One of the key components for effective management of the GBRWHA and for protection of the range of biodiversity is the *Great Barrier Reef Marine Park Zoning Plan 2003,* which came into effect in 2004 and is matched by Queensland's Great Barrier Reef Coast Marine Park (both are described in more detail below under 'Management Philosophy').

The following summary of the key management reforms applied over the past three decades is provided to highlight the comprehensive and adaptive approach to managing the GBRWHA. This overview of the management arrangements ranges from key global issues like climate change, to more localised issues such as island management. Combined, this narrative demonstrates the comprehensive management framework that helps protect the world heritage values of the property in perpetuity. It also outlines the management framework in terms of the science that underpins decision-making and the adaptive management framework.

Table 1 in this chapter summarises the chronology of key management changes in recent decades. A more comprehensive compilation of management arrangements for each of these management issues and activities outlined in Table 1 is currently being finalised (see example at Appendix 2) and will be available for the visit of the reactive monitoring mission in early 2012.

6 There is now a statutory requirement to prepare a formal Outlook Report every five years.

Background

The GBR covers an area about the size of Italy or Japan, stretching 2300 kilometres along the Queensland coast (see Figure 1). The sheer size of the GBR and its jurisdictional arrangements are some aspects of the complexities of management. Parts of the GBR coast have been developed while other parts remain as undeveloped natural areas.

Figure 1: Size of the Great Barrier Reef World Heritage Area relative to other parts of the world

Different jurisdictional areas within the Great Barrier Reef

There are four important and partially overlapping jurisdictional areas within the Great Barrier Reef:

1. The Great Barrier Reef World Heritage Area (GBRWHA)
2. The Great Barrier Reef Marine Park and Commonwealth islands[7]
3. The (Queensland) Great Barrier Reef Coast Marine Park
4. Queensland islands

The GBR Marine Park comprises 99.3 per cent of the GBRWHA (see Map 1). However, the following areas within the GBRWHA are not part of the GBR Marine Park.

- Approximately 980 islands (including continental islands and cays) within the boundary of the GBRWHA are under Queensland law:
  - More than 300 of these islands are protected areas, mostly termed 'national parks', but are under Queensland jurisdiction.
  - Other island tenures within the GBR include freehold, leasehold and unallocated state land.
- Internal waters of Queensland (such as some deep bays, narrow inlets or channels between islands, most of which are within the (Queensland) Great Barrier Reef Coast Marine Park).
- A number of small exclusion areas (State waters) around major ports/urban centres which have not been proclaimed as part of the GBR Marine Park (see Map 2 for an example of port limits).

7 Only 70 islands or parts of islands are under Commonwealth control; of these, 21 are under GBRMPA's management, with the remainder under management of the Defence Department or the Australian Maritime Safety Authority.

The (Queensland) GBR Coast Marine Park is a state marine park that runs the full length of the GBR Marine Park providing protection for Queensland's tidal lands and tidal waters to high water.

The GBR Marine Park and the adjoining state marine park within the GBR are managed in a complementary way and are collectively referred to as 'the marine parks'.

Joint management of the GBR

In 1979, the Queensland and Australian governments agreed to complementary management of the waters and islands within the GBR region (the 'Emerald Agreement'). This was fundamental given the (Queensland) state marine park in intertidal waters, national park islands and other islands, and other Queensland waters (such as ports), all of which adjoin the Commonwealth marine park. This agreement addressed the jurisdictional complexities as well as a range of other legal and administrative matters.

In June 2009, an updated *Great Barrier Reef Intergovernmental Agreement* replaced the 1979 agreement, providing a contemporary framework for cooperation between both governments. The new Intergovernmental Agreement recognises challenges such as climate change and catchment water quality that were not foreseen in 1979.

Queensland government agencies with responsibilities for policy co-ordination, environment, local government, maritime matters, catchment, land use and fisheries are also involved in the management of issues that affect the health and operation of the GBR. The Queensland Department of Premier and Cabinet provides a coordinating role across Queensland agencies, and its Director-General is the Queensland nominee on the GBRMPA Board, which ensures high-level governance and coordinated policy.

Responsibilities for management

Management of the GBR involves a number of agencies:

- The Australian Government is the 'State Party' with overall responsibility for the GBRWHA. The relevant Australian Government department is the **Department of Sustainability, Environment, Water, Population and Communities** (DSEWPaC) which has responsibility for the regulation of activities that are likely to have a significant impact on world heritage values, and other matters under the EPBC Act.
- The **Great Barrier Reef Marine Park Authority** (GBRMPA) is the primary Australian Government agency responsible for planning and management of the GBR Marine Park. The GBRMPA is a statutory Authority with its own Commonwealth legislation, but also operates as part of the Australian Government's environment and heritage portfolio responsible to the Australian Government Environment Minister.
- Various Queensland agencies are involved in the management of the GBR and the adjoining lands and tidal waters, with the **Queensland Parks and Wildlife Service** (QPWS), part of the **Department of Environment and Resource Management** (DERM), having the major responsibility for field management activities.
- Other Australian and state government agencies are involved in specific aspects of management such as shipping, defence training, fisheries and aerial surveillance.

Management philosophy

Because of the iconic status of the GBR, many people think the entire area is a marine sanctuary or a marine national park and that it is therefore protected equally throughout. However the marine parks have always been multiple-use, marine protected areas in which zoning provides one of the key management tools. The multiple-use zoning approach provides for the separation of conflicting uses while allowing a wide range of commercial and recreational activities, some of which are managed through a permit system.

Management of the GBRWHA relies upon a number of **agencies** (including GBRMPA, DSEWPaC and Queensland government agencies) using a combination of management **tools** (including zoning plans, plans of management, fishery management plans, species recovery plans, dugong protection areas, permits), along with various management **approaches** (including education, planning, environmental impact assessment, monitoring, stewardship, enforcement) to regulate access, and to control and/or mitigate impacts associated with **activities** (such as tourism, fisheries, shipping) or address **pressures** (including climate change or declining water quality).

The marine parks collectively provide protection of the biodiversity of the GBR at the ecosystem scale and define which activities can occur in each zone.

Zoning of the marine parks has evolved considerably over the past 30 years. For example, the GBR Marine Park's zoning today provides very high levels of protection ('no-take' and 'no-go' zones) to one third (115 550 square kilometres) of the park while still allowing reasonable uses, including certain fishing activities, to continue in other zones. [8] A further one-third is zoned such that the benthic habitat for bottom-dwelling species is fully protected, including a prohibition on bottom-trawling. The adjacent Queensland zoning is complementary to the Commonwealth zoning, which assists all users to understand the marine parks' provisions, irrespective of the jurisdiction.

The zoning provisions are enforced through the field management program (FMP), a jointly-funded cooperative partnership between the Australian and Queensland governments that guides the day-to-day management of the GBRWHA and the marine parks, and has been operating in a coordinated way since the early 1980s.

The priorities of the FMP work program are set out in the *GBR Intergovernmental Agreement 2009* and include such activities as:

- protection and conservation of the natural and cultural resources;
- protection of key vulnerable species, their habitats and ecosystems;
- effective compliance with relevant Commonwealth and Queensland laws;
- ecologically sustainable public use;
- effective permitting systems and associated policies; and
- effective engagement of Traditional Owners in management.

Effective delivery of the FMP is achieved through regular interaction between agencies and across all levels of management. Joint oversight of the Program is through a field management

8 This comprises the world's largest network of representative no-take zones (33% of the GBR)

strategy group comprising representatives of both governments that is responsible for:

- oversight and implementation of the joint FMP;
- advising the GBRMPA and the Queensland Department of the Premier and Cabinet on the operation of the Joint FMP; and
- periodic preparation of a five-year field management business strategy, and associated plans and budgets.

In 1994 a 25-Year Strategic Plan for the GBRWHA was produced.[9] In addition to a 25-Year objective and vision, the plan included five-Year objectives and strategies to fulfil these objectives, and ensure wise use and protection of the GBRWHA for the future. The Strategic Plan gave all parties with an interest in the GBR's long-term future a say in how the area was to be managed over the next 25 years. These parties included governments, Aboriginal and Torres Strait Islander communities, conservationists, scientists, recreational users and established industries such as fishing, shipping and tourism. When finalised, the Strategic Plan was endorsed by more than 60 organisations representing these parties.

Adaptive management

Over the past three decades different issues have emerged in the GBR, from limestone mining and the threat of oil drilling in the 1970s, to crown-of-thorns outbreaks and rapidly growing tourism in the 1980s, debates about trawling and better protection of biodiversity in the 1990s, water quality issues related to agricultural catchments and coastal development issues in the early 2000s, and most recently, climate change (see Figure 2).

The Australian and Queensland governments have responded effectively to each of these issues, demonstrating or reflecting the foundation of adaptive management that underpins all work on the management of the GBR, which is supported by rigorous science that informs management. It is also a reflection of the clear governance arrangements that provide mechanisms to discuss issues across all levels of government and with industry and conservation groups.

Figure 2: Emergence of key issues from 1970s to the present

9 25 Year Strategic Plan http://www.gbrmpa.gov.au/__data/assets/pdf_file/0004/5476/the-25-year-strategic-plan-1994.pdf

Patterns of use and technologies in the GBRWHA are constantly changing so management needs to be flexible, adaptive and responsive. The marine environment itself is also dynamic - subject to both human use and natural impacts.

The key components of the adaptive management approach in the GBR are:

- *policies* that specify locally appropriate actions based on a sound understanding of the ecosystem's status and behaviour;
- *partnerships* with others where responsibility is shared;
- *management systems* that implement those policies;
- *monitoring plans* to determine the response of the ecosystem and provide a basis for adjusting management; and
- *periodic reporting* – such as the outlook report and annual water quality report cards.

A formal review of the *Great Barrier Reef Marine Park Act 1975* in 2006 led to various measures being introduced to strengthen legal, governance and policy frameworks relating to long-term protection and management of the GBR. This included improved legislative powers providing an enhanced basis for effective management, including the requirement for five-yearly outlook reports. The main object of the Act was amended in 2008 and now states '... to provide for the long term protection and conservation of the environment, biodiversity and heritage values of the GBR Region', and 'so far as is consistent with that main object', other objects were added including '... assist in meeting Australia's international responsibilities in relation to the environment and protection of world heritage'.

Using the best available science as an essential part of good management

Effective management of the GBRWHA depends on knowledge gained from research and monitoring, which is largely undertaken by external agencies, consultants and institutions including the following:

- Australian Institute of Marine Science
- Australian Museum
- Commonwealth Scientific and Industrial Research Organisation
- James Cook University
- Queensland Department of Employment, Economic Development and Innovation
- Queensland Department of Environment and Resource Management
- Queensland Museum
- University of Sydney
- University of Queensland

A network of six island research stations spread along the GBR is integral to the research activities, with approximately 80 per cent of field research occurring around the stations on Lizard, Heron and Orpheus islands. Close and productive working relations between GBRMPA and key research institutions has led to improvements in the management of the GBRWHA, which in turn have resulted in the GBR region being widely recognised as a global leader in tropical marine ecology research and management.

Relationships with researchers have been strengthened through government-funded multi-agency programs including the Marine and Tropical Sciences Research Facility, Reef Rescue Research and Development Program, the National Environmental Research Program, and the Centre of Excellence for Coral Reef Studies.

GBRMPA's role in research is the management, coordination and identification of specific research and information needs. GBRMPA publishes an updated list of scientific information needs for management of the GBR following each five-yearly publication of the outlook report. [10]

Key management issues

The *Great Barrier Reef Outlook Report 2009* provided a comprehensive assessment of the GBR, its management and its long-term outlook. It was prepared by the GBRMPA in the period 2007-2009 based on the best available information up to 2008 and was independently peer reviewed. The report can be viewed online at: http://www.gbrmpa.gov.au/outlook-for-the-reef/great-barrier-reef-outlook-report

The 2009 Outlook Report identified four priority issues facing the GBR.

1. Climate change
2. Continuing declining water quality from catchment runoff
3. Loss of coastal habitats from coastal development
4. Illegal fishing and poaching, and some remaining impacts from fishing

The following text provides a summary of the current management arrangements in place for these priority issues, as well as other relevant management issues.

Climate change (refer also to Table 1 – management issue 1)

The vulnerability of corals to future climate change has received considerable attention, as impacts on corals have already been observed. While coral bleaching has begun to increase in frequency and severity due to rising sea temperatures, the GBR has to-date fortunately not suffered extensive damage due to coral bleaching. However, approximately five per cent of reefs in the GBR were severely damaged in each of the 1998 and 2002 mass coral bleaching events. Projections of future water temperatures suggest coral bleaching could become an annual event in the course of this century.

Many other species, including microbes, fish, marine turtles and seabirds, are also temperature sensitive. Scientists predict impacts on these species under future climate change projections. For example, the gender of marine turtle hatchlings is temperature determined; higher temperatures lead to an increased proportion of females.

Increased temperature is, however, just one of many effects of climate change on the GBR. The other predicted environmental changes indicate there will be additional impacts, and some may have severe consequences. The implications of ocean acidification for animals and plants that produce calcium carbonate skeletons, for example, could be profound. Rising sea level could also lead to large redistributions of benthic (bottom-dwelling) habitats and the animals that depend on them.

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10 'Scientific Information Needs for the management of the GBR Marine Park' http://www.gbrmpa.gov.au/__data/assets/pdf_file/0019/3376/GBRMPA_Scientific_Information_Needs.pdf

The weight of scientific research indicates that even a two degree warming scenario could destroy many reef ecosystems by 2100. This means reducing the impact of non-climate pressures may be the only feasible option to increase the resilience of the GBR and slow the rate of climate-related impacts. The Queensland and Australian governments have implemented a range of management reforms over recent years which have reduced the impact of local pressures and built stewardship in the GBR region. Major strategies include the Reef Water Quality Protection Plan, GBR rezoning, Reef Guardian programs and the Climate Change Action Plan.[11] Both governments are also updating their climate change adaptation strategies containing measures aimed at increasing the resilience of the GBR.

Water quality (refer also to Table 1 – management issues 2a and 2b)

Approximately 90 per cent of the nutrient, sediment and pesticide pollutants entering the GBR come from non-point sources arising from agricultural land-use activities in adjoining catchments.

In 2003, the Queensland and Australian governments implemented the Reef Water Quality Protection Plan (Reef Plan), aimed at halting and reversing the decline in GBR water quality. Reef Plan's scope is to address non-point source pollution from broadscale land use. In 2009, Reef Plan was updated to accelerate improvements in the quality of water leaving catchments and entering the GBR. Reef Plan 2009 includes ambitious targets to halve runoff of harmful nutrients and pesticides and ensure at least 80 per cent of agricultural enterprises and 50 per cent of grazing enterprises adopt land management practices that will reduce runoff by 2013.

To this end, the Australian Government has committed $200 million through the Caring for Our Country Reef Rescue initiative to provide financial assistance to farmers to accelerate the adoption of land management practices that reduce runoff of nutrients, pesticides and sediment from agricultural land. To date, Reef Rescue has assisted 1200 farmers to improve their fertiliser and pesticide application and soil management techniques, with more than 500 000 hectares of farmland under improved management. More than 430 graziers have received grants to improve water quality, and progress is being made on improving ground cover and reducing sediment runoff into rivers entering the GBR over 2.7 million hectares of grazing land.

The Queensland Government has invested $175 million over five years on a range of initiatives, including tough new regulations under the Reef Protection Package that require farmers in high-risk industries (sugarcane and grazing) and high-risk catchments (Mackay-Whitsundays, Burdekin and Wet Tropics) to reduce the risk of runoff of nutrients, herbicides and sediment. Queensland has also introduced legislation to protect riparian vegetation within 50 metres of watercourses and wetlands, and to protect wetlands of high ecological significance in GBR catchments from earthworks.

The first Reef Water Quality Report Card was released in August 2011 and sets a baseline for reporting progress against targets in future annual report cards (see Update on key conservation issues below for more details). The report is the result of a new integrated monitoring and modelling program – the 'Paddock to Reef' program.

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11 Reef Guardian programs http://www.gbrmpa.gov.au/__data/assets/pdf_file/0005/12749/Reef-Guardians-Working-together-today-news-insert.pdf

Coastal development (refer also to Table 1 – management issues 5a, 5b, 5c and 5e)

The Queensland Government is implementing and integrating planning and land-use policies to ensure the state can support Queensland's growing economy and population while managing competing interests (such as environment, urban sprawl, agriculture, mining and related infrastructure) in a sustainable way.

Planning

The 2009 Outlook Report highlighted various issues relating to coastal development including the GBR region's growing population, the limited integration of regional and local plans for the coastal catchments, and the need to address the cumulative impacts of coastal development decisions. The increasing population is compounding these issues for the coastal and downstream environments.

These issues are a reflection of the complex jurisdictional and administrative arrangements over the large area. Planning involves 26 local governments (including five Aboriginal Shire Councils), as well as a range of Queensland and Australian government agencies (as outlined in the section on 'Responsibility for management'). The activities of these various levels of government are aligned through a variety of stakeholder, management, advisory and intergovernmental committees.

Queensland has a comprehensive approach to regional planning, which is used to plan and manage growth and change across the state. Statutory Regional Plans play a key role in helping Queensland meet the challenges associated with managing rapid growth, population change, economic development, protecting the environment and providing infrastructure across multiple local government areas. Regional plans operate in conjunction with other statutory planning tools including state planning policies, local government planning schemes, state planning regulatory provisions and development assessment processes. Regional plans identify:

- desired regional outcomes;
- policies and actions for achieving the desired regional outcomes;
- the future regional land use pattern;
- regional infrastructure provision to service the future regional land-use pattern; and
- key regional environmental, economic and cultural resources to be preserved, maintained or developed.

In the GBR regions (see Map 3), the Far North Queensland Regional Plan 2009-2031 has been completed and provides the blueprint for managing population growth and guiding development in the region. The Draft Mackay, Isaac and Whitsunday Regional Plan 2011-2031 was released for public consultation in 2011 and is being finalised. Regional plans for Central Queensland and North Queensland will be developed in coming years, with Central Queensland being a priority.

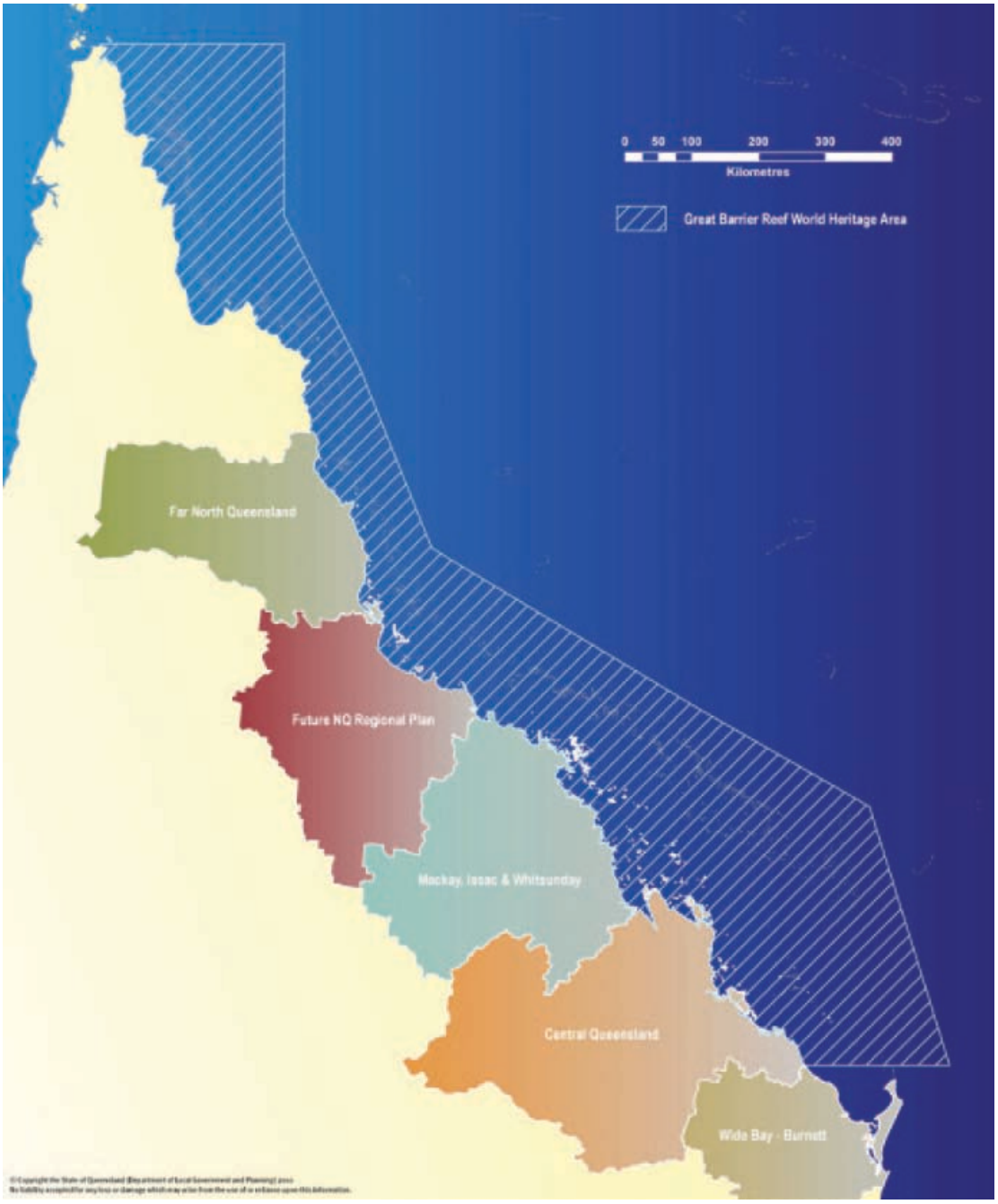
Local planning schemes are required to reflect the principles in the regional plan and therefore provide a 'line of sight' from planning at the state and regional level to the local level.

The Queensland Coastal Plan protects the coastal resources of the coastal zone by setting out criteria for land-use planning, coastal activities and development assessment, enabling Queensland to manage development within the coastal zone, including within coastal waters.

The plan uses the concept of 'areas of ecological significance' (AES) as the means to spatially depict biodiversity values in the landscape. Areas of high ecological significance (HES) have a critical role in maintaining the biodiversity of the coastal zone. Mapped areas of HES are the result of a comprehensive assessment of biodiversity interests in the coastal zone and include the protected area estate, endangered and of concern regional ecosystems, high-value coastal wetlands and core essential habitat for selected threatened species. The plan seeks to protect areas of HES, including those that have been identified on maps contained within the plan and any additional areas identified by planning instruments or peer reviewed scientific studies.

The plan also requires that development minimise adverse impacts on mapped areas of general ecological significance (GES). Specific requirements to protect the habitat of threatened species have been included along with a general requirement to minimise impacts on other ecological values where these cannot be consistently mapped, such as sea grass beds, hind shore and foreshore roosting/nesting sites and sites where local assessments have found threatened species.

The plan also preferences consolidated nodal urban settlement over linear development along the coast. Linear or 'ribbon' settlement patterns that result in a relatively narrow strip of urban development stretching along the coastline and tidal waterways are least preferred. This is because they increase community exposure to coastal hazard risks, potentially sterilise opportunities for coastal-dependent development, and result in increased exposure of high-value coastal habitat to the adverse effects of urbanisation. Planning instruments will be required to allocate future land for urban purposes outside of HES areas.



Map 3: Regional Planning Projects in Queensland

Assessment

The *Sustainable Planning Act 2009* is the key piece of Queensland legislation that guides development assessment. The Act helps deliver sustainable planning outcomes through:

- managing the process by which development takes place;
- managing the effects of development on the environment; and
- coordinating and integrating local, regional and state planning.

The assessment process also takes account of a range of policies that identify where and how development can occur. This includes the Coastal Plan and a range of state planning policies, described below.

The Queensland Coastal Plan helps to protect the coastal zone and manage the impacts of climate change associated with sea-level rise and increasing storm intensity and frequency. The Coastal Plan focuses on core coastal resource matters including development in coastal hazard areas; conservation of coastal biodiversity; coastal-dependent development; dredging and reclamation; and public access, scenic amenity and settlement patterns in the coastal zone.

The Queensland Government approved the making of the Queensland Coastal Plan in April 2011 and the plan is expected to commence in the near future. It will replace the State Coastal Management Plan (2001) and associated regional coastal management plans. The Queensland Coastal Plan has been prepared under the Coastal Protection and Management Act 1995, and Sustainable Planning Act (SPA). The plan includes the State Planning Policy for Coastal Protection, which is directed at land-use planning and development assessment decision making under SPA.

A temporary Wetlands State Planning Policy was introduced in May 2010 that protects wetlands of high ecological significance within the GBR catchments from damage caused by some aspects of development, specifically high-impact earthworks. The State Planning Policy: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments is being finalised and aims to ensure development involving high-impact earthworks in or near high ecologically significant wetlands is appropriately planned, located, designed, constructed and operated to prevent the loss or degradation of wetlands and their values, or enhances these values.

The State Planning Policy for Healthy Waters provides guidance to local government and land developers on protecting waterways from urban development. The policy will ensure that development for urban purposes under the Sustainable Planning Act 2009, including community infrastructure, is planned, designed, constructed and operated to manage stormwater and waste water in ways that protect environmental values.

In addition to the development assessment process under the *Sustainable Planning Act 2009*, Queensland's Coordinator-General has powers to plan, deliver and coordinate large-scale infrastructure projects, while ensuring their environmental impacts are managed. This includes managing a comprehensive environmental impact assessment process, in conjunction with Australian Government agencies. This provides a rigorous assessment including full public participation, resulting in strict conditions to manage and mitigate environmental impacts.

Fishing (refer also to Table 1 – management issues 7a, 7b, 7c, 7d and 7e)

Fishing on the GBR is an important pastime and a source of income for both Queensland coastal communities and the Queensland seafood industry. Viable commercial and charter fishing industries depend on a healthy ecosystem just as Queenslanders rely on a healthy reef ecosystem for recreation and as a source of local seafood. Traditional Owners too are keen to ensure this culturally important resource remains healthy.

During the past 30 years significant commercial fishing management changes in Queensland east coast waters have helped to ensure that our fisheries remain ecologically sustainable. These include reviews of all the major fisheries, such as the prawn trawl, reef line and inshore net fisheries, and also many of the smaller fisheries such as tropical rock lobster, marine aquarium fish and sea cucumber.

Over the past decade, a number of significant scientific projects have been completed, such as the comprehensive Seabed Biodiversity Project, providing a much better information base for the management of fisheries and their interactions with the GBR environment. For example, the management practices adopted for the East Coast Trawl Fishery in the GBR over the past ten years have substantially reduced impacts on marine plants and animals. Changed practices include a marked reduction in the area available for trawling, substantial reductions in fishing effort and fleet size, the adoption of turtle excluder devices and other by-catch reduction devices (this has significantly reduced the mortality of turtles in trawl nets) and the implementation of a satellite-based vessel monitoring system.

Reviews of fisheries have achieved a significant reduction in effort across most fisheries through a number of means including limiting fisher access to certain fisheries, reducing licence numbers and introducing catch quotas such as total allowable catch (TAC) limits and/or individual transferable quotas. Major improvements to the type/use of fishing apparatus have reduced the impact on protected species, non-target species (by-product) and the environment.

One example is the introduction of 16 dugong protection areas along the coast in 1998, which provide greater protection for this iconic marine mammal. Other changes include the zoning (including 33 per cent ‘no-take’ plus a further 33 per cent protected against trawling) and refining size and bag limits of important fish and crab species. New spatial and temporal closures have also been introduced along the east coast to provide protection during spawning periods and to safeguard nursery areas for fish and prawns stocks. To help ensure fish stocks are sustainable, 70 fish habitat areas (which prevent the removal of habitat such as mangroves and seagrass) have been declared along the Queensland coastline.

Since 2008, a further reduction of effort has been achieved by removing access for fishers who did not use their licence to a commercial level across a range of fisheries including crab, beam trawl and line fisheries. A major review of the east coast inshore fin fish fishery in 2009 introduced significant changes including a TAC for shark and grey mackerel *(Scomberomorus semifasciatus)* as well as total protection for a number of shark species.

Tourism and recreation (refer also to Table 1 – management issues 3 and 4)

Tourism and recreation are primary uses of the GBRWHA, contributing more than $5 billion annually to the national economy. Comprehensive management arrangements of the Australian and Queensland governments ensure a range of sustainable tourism and recreation opportunities throughout the GBRWHA, both in the marine environment and on the islands.

The Great Barrier Reef is an iconic Australian tourism destination, and tourism operators play a key role in providing access to the GBR for a wide range of visitors and in presenting its world heritage values. There is a range of joint management arrangements that ensure that tourism and recreation use in the GBRWHA is sustainable. Key components include zoning plans, joint marine parks permits for tourism operations, management plans for popular areas, policies and best practice guidelines.

Through the mandatory environmental management charge paid by tourists to the GBR Marine Park and similar charges for access to island national parks, tourism makes a significant contribution to the resources available for management of the GBRWHA. For example, payments of the environmental management charge contributed more than $7 million in 2010-11.

In a close partnership developed over a number of years, the tourism industry recognises the importance of the world heritage environment to the sector and is actively contributing to its protection and management. Tourism operators are encouraged to voluntarily operate to a high standard in the key areas of protection, presentation and partnership. For example, many operators contribute by undertaking regular monitoring of sites visited, and by reporting sightings and incidents, including by participating in the Eye on the Reef program in collaboration with GBRMPA - http://www.eyeonthereef.com.au/index.cfm.

Operators who are independently certified to best practice standards are recognised and rewarded, including by being offered the opportunity for longer-term permits. As a result, more than 60 per cent of tourists to the GBR are now visiting with a certified high-standard operator.

The Field Management Program, jointly funded by the Queensland and Australian governments, delivers a visitor management program, including visitor facilities such as public moorings, interpretative displays, day-use and camping sites, and an extensive walking track network. For example, $3.2 million has been invested in upgrading and expanding visitor facilities in the Whitsundays including the creation of the Whitsunday Sea Ngaro Trail Great Walk, which has specific emphasis on interpreting cultural values.

Consultation on tourism and recreation management is undertaken at all levels including tourism operators, community groups, sector associations and through the peak marine tourism body, the Association of Marine Park Tourism Operators.

Ports strategy (refer also to Table 1 – management issues 5d)

In order to meet the growing global demand for Queensland resources, consumer demand for goods and services and facilitate economic growth, Queensland's ports and their associated supply chains need to expand (refer to Map 4).

Dredging activity has occurred since the establishment of ports along the Queensland coast. Most large-scale dredging and material placement activities in the GBRWHA are associated with the operation of the larger and busier ports such as Cairns, Townsville, Mackay, Hay Point and Gladstone.

The requirement for ports to remain accessible needs to be balanced with the protection of the marine environment and the interests of other stakeholders.

Dredging and placement of dredged material (also called spoil dumping) can have relatively well-known potential impacts including degradation of water quality, changes to hydrodynamics, smothering of benthic (bottom-dwelling) fauna or flora, the reduction of light penetration, damage to marine wildlife through the dredge mechanism, translocation of species and the removal of habitat.

Historically, most large-scale dredging and spoil disposal associated with the activity of ports adjoining the GBR Marine Park occurs outside the Marine Park but within the GBRWHA. Nevertheless, GBRMPA undertakes a comprehensive assessment of the potential impacts to the receiving environment including the suitability of the disposal site and the development of future mitigation and management measures.

The assessment process occurs under a regulatory framework, which encompasses evaluating disposal alternatives and waste minimisation procedures, site and impact assessments and management and monitoring programs.

Management measures for spoil disposal can include treatment of dredge material to reduce the level of contaminants, changing the location of the disposal to minimise the impacts on sensitive benthic communities or altering the time of year of the disposal in order to avoid critical life-cycle phases such as coral spawning or whale calving periods.

In January 2011 the Australian Government released a national ports strategy aimed at creating a coordinated approach from all levels of government to planning for ports and their road and rail links. The strategy involved intensive consultation with government and industry stakeholders, and covers both bulk commodity ports and container ports, which face increasing pressures as trade levels are expected to continue to double every ten years.

In response to the national strategy, the Queensland Government is developing a Queensland Ports Strategy (see Part B of Chapter 2 below for more details).

Shipping (refer also to Table 1 – management issues 6)

Management of shipping in the GBR has significantly improved since the area was inscribed on the World Heritage list and subsequently designated as a particularly sensitive sea area by the International Maritime Organisation. This designation has included the Torres Strait since 2004. Through the 1990s compulsory and recommended pilotage regimes were introduced and a ship reporting system, REEFREP, was established.

Over the past decade a vessel traffic system, REEFVTS, expanded the REEFREP system, providing a monitoring and surveillance system and traffic information service for shipping throughout the GBR and Torres Strait. This involves mandatory reporting and automated position reporting via satellite, along with radar and automatic identification system information.

Subsequent improvements to shipping management have included establishing designated shipping areas and defined traffic routes, limiting shipping to specific zones along the GBR as well as extending the compulsory pilotage area to include Torres Strait.

Infrastructure has been greatly enhanced by an increase in the number of aids to navigation and a differential GPS service, which increases the accuracy of the GPS signal. Further improvements to vessel tracking include mandatory requirements for vessels to carry automatic identification systems (AIS).

The Australian Maritime Safety Authority continues to provide emergency towage capability through the National Maritime Emergency Response Arrangements with the 'Pacific Responder' vessel permanently tasked to operate in the northern GBR and Torres Strait areas.

In 2009, ports and waterways safety assessment risk assessments were conducted for specific high shipping areas within the GBR and the recommendations are being implemented.

In 2011, REEFVTS was extended south to the southern limit of the Particularly Sensitive Sea Area. This includes new ship reporting points to reflect additional entry and exit points, additional AIS and VHF radio installations and enhanced decision support tools so vessel traffic service operators can determine when interaction with vessels may be necessary.

Aquaculture (refer also to Table 1 – management issues 8a and 8b)

Aquaculture is managed by the Queensland and Australian governments through assessments under the (Queensland) *Environment Protection Act 1994* and the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999* respectively. The aquaculture industry continues to explore improved processes to treat their waste water and further reduce any potential environmental impacts on the receiving environment.

The Queensland Coastal Plan, developed by the Department of Environment and Resource Management in 2011, provides greater certainty about where aquaculture may be considered in the future by recognising aquaculture development areas. An important component of the strategic assessment will be to identify suitable locations for future aquaculture.

Biodiversity protection (refer also to Table 1 – management issues 11a and 11b)

Protection of the important biodiversity values of the GBR has been a long-standing objective of both the Australian and Queensland governments. This is achieved by balancing ecologically sustainable use, commercial realities and an overarching objective to protect and conserve the environment, biodiversity and heritage values of the GBR.

There is a comprehensive range of legislation, policies and management arrangements administered by a number of Australian and Queensland government agencies, which collectively protect the biodiversity in the GBR. The *Great Barrier Reef Marine Park Zoning Plan 2003* and the complementary Great Barrier Reef Coastal Marine Park together provide one of the primary management tools for the protection of the biodiversity throughout the GBR ecosystem. They include a comprehensive network of representative 'no-take' zones that protect at least 20 per cent (often more) of all 70 reef and non-reef bioregions that extend both along and across the GBR. In combination this network of 'no-take' zones, other zone types

and associated regulations provide protection for habitats, plants and animals while providing opportunities for sustainable use of the GBR and its resources.

In addition to the zoning plans, there is a range of legislation that promotes biodiversity protection, with foundations primarily in the *Nature Conservation Act 1992* (NCA) and *Vegetation Management Act 1999* (VMA). The NCA is an integrated approach to protecting habitats and recognises the essential role that private individuals can make to the conservation of nature, while the VMA regulates the clearing of native vegetation in Queensland. Ending broadscale clearing in Queensland at the end of 2006 has permanently protected 70 million hectares of woody vegetation. Biodiversity protection was further enhanced in 2009 through regulating the clearing of certain regrowth vegetation including regrowth vegetation within 50 metres of watercourses in priority GBR catchments.

In 2011, the Queensland Government released the final Building Nature's Resilience: A Biodiversity Strategy for Queensland. The strategy provides, for the first time, a whole-of-landscape approach to improving Queensland's natural ecosystem resilience. It builds on existing projects and legislation and contains a number of priority actions and targets including:

- establishing an expanded network of border-to-border marine parks by 2020;
- finalising the *Naturally Queensland 2020* revised master plan for Queensland's protected area system;
- providing a framework to deliver the *TowardQ2:Tomorrow's Queensland* green target to protect 50 per cent more land for nature conservation and public recreation;
- implementing projects that target cost-effective and on-ground actions for threatened species habitat protection and threat reduction; and
- identifying and monitoring threatened iconic species populations and reviewing and implementing recovery actions.

Island management (refer also to Table 1 – management issues 12 and 15a)

There are some 1050 islands and cays within the boundaries of the GBRWHA. Approximately 600 are continental (high) islands, 300 are coral cays, with the remaining 150 islands comprising mangrove islands which provide important ecological services to the GBRWHA.

More than 300 of the islands in the GBRWHA are protected areas, mostly national parks, dedicated under Queensland's *Nature Conservation Act 1992*: a 50 per cent increase in island national parks since 1981. The first statutory management plans for islands in the GBRWHA were prepared in 1998. Management plans clearly articulate how a protected area will be managed to protect its natural and cultural values, support visitor use and manage other uses.

Island ecosystems are particularly susceptible to damage from pests and fire due to their relative isolation, less diverse communities and subsequent lack of robustness. Eradicating pests on islands has long been a priority. The size and relative isolation of islands also makes eradication through strategic and sustained effort achievable and warranted. Formalised fire management is developed and approved under the Queensland Parks and Wildlife Service fire management system.

Research and monitoring is fundamental to managing and protecting the reef and islands. For example, turtle and seabird research and monitoring centred on GBR islands has led the world

in developing a better understanding of the breeding biology and population dynamics of green and loggerhead sea turtles. This has generated very positive conservation outcomes.

There are 70 Commonwealth Islands that comprise the only land component of the GBR Marine Park; 21 of these 70 islands are managed by the GBRMPA, 48 are under the management of the Defence Department and one remains with the Australian Maritime Safety Authority.

Many Commonwealth Islands have significant heritage value with historic light stations, associated shipping and navigational history, Indigenous significance and natural values. GBRMPA works closely with state and federal agencies and lease holders to work towards the long-term protection and management of Commonwealth Islands.

Cape York Peninsula

The Cape York Peninsula region covers an area of about 14 million hectares and forms the catchment of the far northern section of the GBR, approximately one-third of the total catchment area for the GBRWHA. Much of the central and south-western land area (53 per cent) is subject to low-impact grazing and significant areas are managed for conservation purposes (currently 14 per cent of the total land area, concentrated predominately on the east coast). A further 24 per cent is Aboriginal land. As a result, land-based impacts on the adjoining areas of the GBR are minimal.

Since 1994, $36.8 million has been spent on acquiring more than 1.3 million hectares of land for conservation and this land is being progressively transferred to Aboriginal ownership and protected areas. The Australian Government recently allocated $16 million for further acquisitions.

The Queensland and Australian governments are working together to prepare a world heritage nomination for suitable areas of Cape York Peninsula. A world heritage nomination for Cape York Peninsula will only proceed with the consent of Traditional Owners. A successful nomination would further enhance the protection of natural values in the far northern section of the GBR, thus improving the GBRWHA's overall resilience.

European heritage (refer also to Table 1 – management issue 14)

The Queensland Government has responsibility for managing historic shipwrecks under both the *Commonwealth Historic Shipwrecks Act 1976* and the *Queensland Heritage Act 1992.* Historic shipwrecks are significant facets of the Queensland dive tourism industry. Since the eighteenth century more than 1400 ships are believed to have been wrecked along the Queensland coastline. These wrecks are vulnerable to cyclonic activity and flooding events, which accelerate chemical, biological and mechanical damage. In 2010 the Queensland Government commenced a five-year survey of Queensland's shipwrecks to locate, record and assess these resources.

Since state legislation was introduced in 1992, more than 1670 heritage places have been entered in the Queensland Heritage Register. A number of heritage places are along the coast or on islands, including jetties, wharves, lighthouses, customs houses, maritime industries

and tourist infrastructure. These places are also vulnerable to rising sea levels, cyclones and flooding.

Legislative reforms in 2007 recognised local heritage for the first time and required local governments to establish lists of significant local heritage places. The reforms were supported by a systematic survey of Queensland's cultural heritage places - which is still underway - and a $5 million three-year heritage grants program. This comprehensive heritage regime will be supported by a state planning policy for heritage management due to be introduced in 2013.

A GBR Heritage Strategy, approved by the Australian Government Minister in early 2006, outlined actions for identifying, assessing and monitoring the heritage values of the GBR and the preparation of heritage management plans for specific heritage sites. In 2009, the 10-year Queensland Heritage Strategy was launched with five key directions demonstrating the state government's commitment to conserving Queensland's landscapes whilst supporting environmentally sustainable solutions for future development.

Traditional use of marine resources (refer also to Table 1 – management issue 13a)

Traditional use of marine resources is the undertaking of activities as part of Aboriginal and Torres Strait Islander people's cultures, customs or traditions, for the purpose of satisfying personal, domestic or communal needs. Such activities include fishing, hunting (for example turtle and dugong), collecting (for example shellfish), and looking after cultural and heritage sites.

Many Aboriginal and Torres Strait Islander peoples undertake traditional use of marine resources activities to provide traditional food for families, practice their living maritime culture, and to educate younger generations about traditional and cultural rules and protocols.

Traditional use activities in the GBRWHA are managed under both Commonwealth and Queensland legislation and policies; both governments recognise that under section 211 of the *Native Title Act 1993*, Native Title holders may undertake the traditional use of marine resources.

Key tools for working with Traditional Owners in and adjacent to the GBR are Traditional Use of Marine Resource Agreements (TUMRAs) and Indigenous Land Use Agreements (ILUAs), both of which support Traditional Owners to maintain cultural connections with their sea country. These approaches build on community-based measures developed by some Traditional Owner groups to manage their use of these resources, and were developed based on extensive consultation and advice from Traditional Owners, Indigenous communities and representative bodies. Approximately 30 per cent of the GBR inshore area is currently covered by TUMRAs and ILUAs, and other groups have proposed additional areas; however continued investment of time and resources is needed to work with Traditional Owners to enhance the management of traditional resources.

There is no accurate measure on the level of take of traditional resources across the GBR of species such as turtle and dugong (*Dugong dugon*). It is important, however, to not isolate traditional hunting as the main threat to these species given the many other threats to marine resources including coastal development, habitat degradation, boat strikes, netting, sedimentation and pollution – all these threats need to be recognised and addressed collectively.

Indigenous heritage (refer also to Table 1 – management issue 13b)

Cultural heritage is strongly tied to Aboriginal and Torres Strait Islanders' connection to the land, and includes traditions, ideas, skills or rituals, which are passed through generations, expressive activities (language, music, dance and drama), immovable areas or objects (sites, landscapes or areas of significance to a particular group), and movable objects (artefacts).

Cultural heritage management involves the effective recognition, protection and conservation of Aboriginal cultural heritage, significant areas and objects. The *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003* ensure Aboriginal and Torres Strait Islander cultural heritage in Queensland is appropriately recognised, conserved and protected. Under the legislation, cultural heritage is specifically defined as significant Aboriginal or Torres Strait Islander areas in Queensland, significant Aboriginal or Torres Strait Islander objects, and archaeological or historic evidence of Aboriginal or Torres Strait Islander occupation of an area.

Defence activities (refer also to Table 1 – management issue 9)

In the 20 years following the Second World War, a number of defence training areas were established within or adjacent to the GBRWHA. Today there are six designated defence training areas within or adjacent to the GBRWHA; the largest of these, with the highest intensity of use, is Shoalwater Bay Defence Training Area, near Rockhampton, acquired in 1964; others like Halifax Bay, near Townsville or Cowley Beach, near Mourilyan Harbour, are used far less often.

Defence activities that are typically carried out in the GBRWHA fall into both training and operational categories. Operational activities often assist, directly and indirectly, in the achievement of management objectives for the GBRWHA including hydrographic surveys, and fisheries and border protection patrols. Training activities are routine in the GBRWHA and include regular bilateral and unilateral exercises of various scales, with the Australian Defence Force being the primary user.

Defence has a number of policies and management plans that together contribute to a robust environmental management plan within the GBRWHA including the Defence Environmental Policy and the Maritime Activities Environmental Management Plan. Defence has historically contributed to environmental research within the GBRWHA addressing key issues such as the status of dugong in Shoalwater Bay.

The training areas within and adjacent to the GBRWHA are crucial to the Australian Defence Force who work closely with GBRMPA. The adaptive management of these training areas has demonstrated a successful approach with no recognisable major environmental impacts to date. The current management agreement between Defence and GBRMPA on implementation of the strategic environmental assessment of defence activities in the marine park is due for renewal in 2012.

Table 1 - Examples of key changes and adaptive management in the GBR

** The management effectiveness of the indicated management issues/activities was assessed in the 2009 Outlook Report.*

Management issue/ activity	Year	Key changes and adaptive management
1. Climate change*	2007	*Climate Change and the Great Barrier Reef: A Vulnerability Assessment* - a comprehensive assessment of climate change risks for any coral reef ecosystem, this text has become the foundation for the GBR Climate Change Action Plan.
	2007	*Climate Change Action Plan 2007-2012* - outlines actions to maximise the resilience of the GBR. Currently being reviewed and updated.
	2010	*Coral Bleaching Response Plan 2010-2011* - updated annually since 2000, it outlines a strategic approach for monitoring bleaching risk.
2a. Land sourced pollution – broad area (eg. from agriculture) *(assessed in 2009 Outlook Rpt as Water Quality*)*	1994	*25 Year Strategic Plan* for the GBRWHA identified water quality and catchment management as important issues facing the GBR; this led in the late 1990s to water quality being identified as one of the four critical issues for the GBR.
	2001	*Water Quality Action Plan* - review conducted of pollutant runoff and existing national water quality guidelines. Targets recommended for pollutant loads from catchments. Identified the most significant risk of polluted discharges from catchments adjacent to the GBR and recommended targets to reduce these pollutants.
	2003	*Reef Water Quality Protection Plan* (Reef Plan) released - actions focused on largest pollutant load contributor to the GBR - diffuse agricultural sources. Australian and Queensland government commitment to 'halt and reverse the decline in water quality entering the GBR within 10 years'. Relative risks from the major river basins were categorised and the plan was endorsed by the Australian Prime Minister and the Premier of Queensland.
	2005 -2013	A comprehensive ecosystems health and water quality monitoring program assesses the effectiveness of the Reef Plan in addressing the decline in water quality in the GBR. Implemented via the joint Australian and Queensland government Paddock to Reef Integrated Monitoring, Modeling and Reporting Program since 2009.
	2008	*Reef Rescue* - Australian Government election commitment and a component of the Caring for our Country program. $200 million for five integrated programs including $158 million funding for on-ground works primarily through water quality grants and agricultural extension, $22 million for monitoring and reporting, $10 million for research and development, and $10 million for a Land and Sea Country Indigenous Partnerships program.
	2009	*Revised Reef Water Quality Protection Plan* - extensive revision, including greatly increased funding, and more specific actions and targets. Introduction of the single largest ever incentive scheme for on-ground projects and extension works to improve water quality via the Australian Government's $200 million Reef Rescue initiative and introduction of the Queensland Government's Reef Protection legislation to accelerate uptake of better management practice.
	2009	*Water Quality Guidelines for the GBR Marine Park 2009* released - used in developing targets for actions and as a comparison for reporting monitoring data. Regionally specific guidelines developed in accordance with National Water Quality Management Strategy.
	2011	Reef Plan *Baseline Report Card* released - provides an estimate of the status of key ecosystem health indicators and pollutant loads for the period immediately preceding 2009. The GBR is in moderate condition overall, but regional variability is evident. This report card will be used as a point of comparison to measure progress towards Reef Plan (including Reef Rescue) goals and targets.

Management issue/ activity	Year	Key changes and adaptive management
2b. Land sourced pollution – urban/ industry/point source *(assessed in 2009 Outlook Rpt as Water Quality*)*	1992	Policy implemented on *Sewage Discharges from Marine Outfalls* into the GBR Marine Park - policy required upgrade to tertiary or tertiary-equivalent standard for facilities discharging to Marine Park by 1 Jan 1996. Six island resort operations had outfalls with direct discharge to the Marine Park in 1992; four operations opted for full effluent reuse, while the remaining two complied with upgrade requirements.
	1993	*Great Barrier Reef Marine Park Regulations* 1983 revised - a number of islands within the GBR Marine Park generate point source pollution. Mainland facilities may include intakes or outfalls that are within the marine park. Treatment standards for sewage discharge are defined to minimise impacts of nutrients and other potentially harmful substances on marine plants and animals. An environmental management charge (EMC) introduced to encourage operators of sewage treatment plants to improve their discharge water quality.
	2002	*State Coastal Management Plan* sets out that for coastal waters where nutrients are identified as a problem, sewage treatment facilities discharging into these waters should include appropriate nutrient removal by 2005 (discharge from islands) or 2010 (discharge from mainland). Note: The inshore areas from Port Douglas to Gladstone have been identified as an area of high risk from the impact of nutrients. The State Coastal Management Plan was reviewed and re-released in 2011.
	2003	Sewage EMC revised for discharging to the GBR Marine Park. A flat fee applies to all discharges; for facilities less than tertiary standard, there is an additional charge. Applies to sewage discharge to the Marine Park via a marine outfall. Provides an incentive for operators to further consider reuse opportunities before discharging.
	2007	*Reef Guardian* Council program initiated - participating local councils aim to improve the health and resilience of the GBR through initiatives including: • Water management - waterways rehabilitation, water monitoring, urban stormwater treatment, waste water and trade waste treatment. • Waste management - waste avoidance, waste reuse and recycling, and recovery of energy • Land management - vegetation and pest management, resource assessment, erosion control, and land planning and management

Management issue/ activity	Year	Key changes and adaptive management
3. Commercial marine tourism*	1993	Environmental Management Charge (EMC) introduced at a rate of $1 per tourist per day, to be paid by the tourist operator, to recoup part of the cost of management of the growing tourism industry and associated environmental impact.
	1996	*EMC* increased to $2 per tourist per day.
	1996	Moratorium on issuing any new tourism permits in the Cairns and Whitsundays areas after increasing tourism use of the two most popular areas of the marine park raised concerns about the number of operations and their impact.
	1996	Marine Tourism Staff Certificate Course - a training course for tourism crew, designed to improve tourism crew understanding of the marine park, its ecosystem and its management. Initially introduced as a face-to-face course, it was revised in 2003 and 2011 and is now being redeveloped online.
	1998	EMC reviewed, resulting in a charge that is now paid by the tourist, collected by the tourist operator and remitted to the GBRMPA. The intention of the change was to ensure that international visitors to the GBR, not just the Australian public, were funding the management costs of the GBRMP. The EMC was increased to $4 per person per day and linked to CPI. The EMC will increase to $6.00 per person per day in 1 April 2012.
	1998	*Cairns Area and Whitsundays Plans* of Management - statutory plans introduced site management arrangements and detailed 'settings' arrangements for recreation. Strategies for interactions with other uses included: closely managing access to sensitive locations, designating areas available for motorised water sports, and designating 'settings' for all locations in the Planning Areas (Plans were amended in 1999, 2002, 2004 (Cairns Area only), 2005 and 2008).
	2004	*Onboard* - Tourism Operators' Handbook for the GBR. Online resource providing up-to-date information for tourism operators, this website details all management requirements, information about operating in different locations and achieving high standards in the marine park.
	2004	*High Standard Tourism Program* - agreement with certification body Ecotourism Australia, longer term permits and showcasing benefits available to certified high standard operations. Since 2004, the number of certified high standard tourism operations has grown to 53, with more than 60 per cent of tourists visiting the GBR on a high standard operation. These operations are showcased at trade shows and on GBRMPA website.
	2007	The Whitsunday and Mackay Islands Visitor Management Strategy released.
	2011	Launch of Tourism in Protected Areas initiative - a permitting framework to accommodate the contemporary demands placed on tour operators while fostering high quality tour operations on the Reef and islands and providing greater business certainty.
	2011	EMC Online released to tourism operators as a way for them to submit their EMC information to the GBRMPA and make online remittance payments.

Management issue/ activity	Year	Key changes and adaptive management
4. Recreation (not including-fishing)*	2002	Policy on *Moorings* in the GBR Marine Park to guide the management of moorings in the marine park, including both public and private moorings. Addressed issues such as permitting, site planning, use of moorings and sharing of privately installed moorings with other users. Amended in 2005
	2003	Telephone survey of recreational use of GBR catchment residents - provided information on the number of residents visiting the marine park, locations visited, activities undertaken and visitor satisfaction (survey repeated in 2008)
	2006	*Responsible Reef Practices* for recreation in the GBR Marine Park. A comprehensive revision of best practices for recreation. Twelve topics addressed including anchoring, waste, chemicals, and litter. Available in hard copy, on the website, on zoning maps and in locally produced guides and brochures.
5a. Urban expansion *(assessed in 2009 Outlook Rpt as coastal development*)*	1995	*Coastal Protection and Management Act 1995* - provides for the development of state and regional planning and the integrated approval process in relation to coastal development. Queensland released a new Coastal Plan in 2010 that provides visions, principles and policies for coastal development. The Act also provides for the regulation of dredging, quarrying, canal construction, tidal works and other activities in the coastal zone, in particular in erosion prone areas.
	2007	*Reef Guardian Council* program initiated. Councils manage land and facilities that are sources of pollutants to GBR waters (as outlined above). A desire for a stronger relationship generated this initiative. Thirteen councils covering 317 271 square kilometres with a combined population of more than 890 000 are in the Reef Guardian Council program.
	2010	The State Planning Policy 4/10 for Healthy Waters (SPP) - outlines Queensland's interest in protecting water environmental values and environmental health when making decisions about development. The policy is a practical means of addressing urban storm water runoff through the introduction of effective planning and management of urban diffuse source of contaminants entering natural waterways and coastal waters. This policy is supported by a State Planning Policy Guideline for Healthy Waters.
	2011	Introduction of Queensland Coastal Plan and State Planning Policy 4/11: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments

Management issue/ activity	Year	Key changes and adaptive management
5b. Agricultural expansion *(assessed in 2009 Outlook Rpt as coastal development*)*	1991	*Strategy for the Conservation and Management of Queensland's wetlands* - outlines four objectives: to avoid further loss or degradation of natural wetlands (unless overriding public interest can be shown), to ensure a comprehensive and adequate representation of wetlands in the conservation reserve system, to base the management and use of natural wetlands on ecologically sustainable management and integrated catchment management practices, to develop community awareness of, and respect for wetlands, and involvement in their management.
	1999	*Vegetation Management Act 1999* - provided for planning and regulations to manage vegetation clearing in Queensland. The Act provides a mechanism to significantly reduce broadscale clearing activities which were contributing to a decline in water quality across the GBR catchment. By 2006 broadscale clearing had effectively stopped in Queensland.
	2009	*Water Quality Guidelines* for the GBR Marine Park for maintaining the health and resilience of the GBR. These guidelines describe the concentrations of sediment, nutrients, and pesticides that are needed for the protection and maintenance of marine species and the GBR's ecosystem health. Areas that are not covered in the guidelines default to the Queensland Water Quality Guidelines 2006 or the Australian and New Zealand Guidelines for Fresh & Marine Water Quality 2000.
	2011	State Planning Policy 4/11: Protecting Wetlands of High Ecological Significance in Great Barrier Reef catchments ensures development involving high-impact earthworks in or near wetlands of high ecological significance is appropriately planned, located, designed, constructed and operated.

Management issue/ activity	Year	Key changes and adaptive management
5c. Heavy Industry Expansion (State Development Areas) (other than ports – see below) *(assessed in 2009 Outlook Rpt as coastal development*)*	1971	The *State Development and Public Works Organisation Act 1971* is `An Act which provides for State planning and development through a coordinated system of public works organisation, for environmental coordination, and for related purposes.' The original Act was first passed in 1938 as a post Depression measure to create employment and to develop the State, through a system of coordinated public works. The Act was substantially revised and updated in 1971 when specific powers relating to supervision of the environment were introduced to the Act (which were subsequently amended in 1978).
	1994	*Environment Protection Act 1994* - object of this Act is environmental protection within the context of ecologically sustainable development. The Act creates a general duty for all people, companies and government bodies to take all reasonable and practicable steps to avoid harm to the environment.
	1997	*Integrated Development Assessment System* (IDAS). Development applications lodged prior to Dec 2009 are assessed under the Integrated Planning Act 1997. Applications lodged on or after Dec 2009 are assessed under the Sustainable Planning Act 2009. In order to carry out certain types of developments, applications may need a development permit. IDAS brings together these legislative requirements into one process.
	1999	*Environment Protection and Biodiversity Conservation Act 1999* - This is the overarching national environmental law. A wide approach must be taken when assessing the scope of impacts under the Act. All likely impacts must be considered, including direct and indirect, and must consider 'matters of national significance' (GBRWHA and the Marine Park are both matters of national environmental significance)
	1999	The *State Development and Public Works Organisation Act 1971* was further amended in 1999, clarifying the Coordinator-General's role in coordinating impact assessment for significant projects; enabling the Coordinator-General to acquire and access land for persons other than the State, and updating enforcement provisions for land use established within a state development area.
	2009	*Sustainable Planning Act 2009* - forms the foundation of Queensland's planning and development assessment legislation. The Act imposes requirements on state and local government to co-ordinate the assessment and administration of legislation dealing with development approvals, and to ensure state interest are properly reflected, especially in local government planning.

Management issue/ activity	Year	Key changes and adaptive management
5d. Ports* and associated infrastructure	1981	A number of coastal areas previously excluded from the GBR Marine Park were added to the park because of their values and the recognition they were not potentially suitable for coastal developments like ports.
	1994	*Transport Infrastructure Act 1994* – Queensland's port authorities operate principally under the provisions of the *Government Owned Corporations Act 1993* and the *Transport Infrastructure Act 1994*.
	2004	*Dredging and Spoil Disposal Policy* - provides a transparent, consistent and contemporary approach to environmental impact management of dredging and spoil disposal in the GBR Marine Park.
	2009	EPBC and GBRMP Act amendments - GBR Marine Park became a 'matter of *national environmental significance*' under EPBC Act; any referral under the EPBC Act for an action in the GBR Marine Park is deemed also to be an application for all necessary GBRMPA Act permissions and assessed under a single integrated process between DSEWPaC and GBRMPA.
	2009	MOU with Ports reviewed and enhanced - addresses key areas such as strategic planning, research and monitoring, management of port activities, consultation, introduction of marine pests and dredging.
	2009	*'National Assessment Guidelines for Dredging'* - provide proponents guidance on dredging and dredge disposal in order to better protect the environment.
	2011	National Ports strategy released; Queensland Ports Strategy under development
5e. Utilities (roads, rail, water supply, etc)	1971	*State Development Public Works Act 1971* - draws together a range of powers and functions used by Queensland to promote and facilitate large projects. Act provides a formal impact statement process for significant projects, and provides a range of mechanisms to facilitate large development projects including: declarations of prescribed development of State significance, State development areas and a power to compulsory acquire land. The Act is administered by the Coordinator-General.
	1994	*Transport Infrastructure Act 1994* - facilitates planning, construction and operation of roads, railways and ports. The construction of these facilities has potential for major direct and indirect effects on the environment. An important piece of the Queensland environment planning regime as strategic port land is not subject to local government planning schemes.
	2002	State Planning Policy 2/02 *Planning and Managing Development Involving Acid Sulphate Soil*. This State Planning Policy has effect when certain development applications are assessed, when planning schemes are made or amended, and when land is designated for community infrastructure in low-lying coastal areas.

Management issue/ activity	Year	Key changes and adaptive management
6 . Shipping* management	1990	GBR Marine Park declared the world's first Particularly Sensitive Sea Areas (PSSA) - international recognition allowed for implementation of special protective measures to control shipping operations which included compliance with the Australian system of pilotage, mandatory ship reporting and two way routes. A compulsory pilotage regime was introduced in the inner route from Cape York to Cairns in 1991 - pilots provide detailed local knowledge to assist safe passage.
	1997	Mandatory ship reporting system for GBR is introduced through REEFREP - all ships over 50 m length; all oil tankers, LNG carriers and chemical tankers; and ships engaged in towing are required to participate in this system which provides a monitoring capability ashore.
	2004	Coastal vessel traffic service (REEFVTS) introduced, allowing near real-time monitoring of ship traffic to provide information to a ship's master on potential traffic conflicts and other navigational information.
	2008	Automatic Identification System (AIS) required on board vessels, providing automatic information exchange between vessels as well as being monitored onshore by AIS receivers which provide real-time data on vessel movement and greatly enhances vessel tracking abilities.
	2010	*Improving Safe Navigation in the Great Barrier Reef* - following the *Shen Neng 1* grounding, this report recommended measures to further minimise the risk of ship groundings, collisions and marine pollution incidents in the GBR.
	2011	Extension of REEFVTS to southern boundary of GBR PSSA - as a direct result of the *Shen Neng 1* incident and actual increases in ship traffic around the Gladstone region, the mandatory ship reporting system was extended into the southern portion of the GBR Marine Park. New offence under the *Navigation Act 1912* for operating a vessel in a manner that causes pollution or damage and increased penalties for failure to report an incident by a ship in the GBR Marine Park. Also, increased penalties under the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* for the discharge of oil or oil residues by ships in Australian waters to $11 million for an aggravated offence.

Management issue/ activity	Year	Key changes and adaptive management
7a. Trawling (assessed in 2009 Outlook Rpt as part of Fishing*)	1999	Trawl Management Plan introduced which required mandatory Vessel Monitoring System; quota system; restrictions on net size, etc. Commencement of Export/WTO accreditation - any fishery with an export component undergoes assessment by DSEWPaC to ensure the fishery is managed in an ecologically sustainable way.
	2000	By-catch reduction devices (BRDs) and Turtle Excluder Devices (TEDs) mandatory on all Queensland trawlers. TEDs allow for the effective escape of turtles and other large non-target species (including sea sponges, sharks and large rays) that interact with trawl gear. TEDs are compulsory throughout the east coast trawl fishery with a guide developed to ensure TEDs are made to a consistent standard.
	2001	Jointly-funded structural adjustment scheme (Australian and Queensland Governments) and a voluntary surrender of effort units by industry resulted in more than 15 per cent of effort being removed from the fishery in early 2001.
	2002	*Seabed Biodiversity Project 2003-2007* - $9 million collaboration among four research partners to map non-reef habitats and their biodiversity throughout the Marine Park in depths of 10 - 150 metres. Involved visiting almost 1400 sites, representing the full range of known environments, and collecting towed videos, benthic, fish and sediment samples. Study identified only three species (out of 840 analysed) that exceeded a limit reference point based on mortality.
	2004	New Zoning Plan for entire GBR Marine Park; the General Use Zone, in which trawling is allowed, was reduced from more than 70 per cent to around 33 per cent of the GBR Marine Park; however it is estimated that trawlers utilise only about 6 per cent of the entire Marine Park.
	2011	Ecological Risk Assessment for the East Coast Otter Trawl Fishery (ECOTF) – undertaken collaboratively between GBRMPA, Queensland Seafood Industry Association (QSIA) and Fisheries Queensland. The final report is still being compiled; however key results indicate the overall environmental footprint of the ECOTF was lower in 2009 compared to 2005 as a result of a substantial reduction in fishing effort and fewer active boats in response to changed economic circumstances.
7b. Line fishing (assessed in 2009 Outlook Rpt as part of Fishing*)	1990s	Introduction of possession limits and minimum sizes for a number of fish species including Coral Reef Finfish Species throughout Queensland and GBR Marine Park.
	1999	Commencement of *Export/ Wildlife Trade Operation (WTO) accreditation* to ensure the fishery is managed in an ecologically sustainable way.
	2003	Coral Reef Finfish Fisheries Management Plan introduced to initiate major management changes in the Coral Reef Finfish Fishery which predominantly operates in the GBR Marine Park. Revised possession limits and size limits introduced for many Coral Reef Finfish Species.

Management issue/ activity	Year	Key changes and adaptive management
7c. Netting *(assessed in 2009 Outlook Rpt as part of Fishing*)*	1997	Negotiations concluded and Dugong Protection Areas (DPAs) were introduced to minimise the likelihood and level of interaction between dugong and netting. Ex gratia payments were paid to affected fishers.
	2003	Species of Conservation Interest (SOCI) *logbooks* introduced, but these have proved only marginally effective as inaccurate reporting remains a major issue.
	2004-2005	Latent effort reduction and structural adjustment achieved a 40 % reduction in latent net licences. However latency remains a major issue in this fishery as many fishers who were bought out simply purchased a latent licence and re-entered the fishery, this is causing ongoing problems. WTO assessment commenced but not finalised until November 2008
	2008	Second WTO assessment commenced. Negotiations finalised in 2009 with a set of 16 conditions and 14 recommendations, improving regulation of this fishery. Primary concerns with shark and interactions with protected species; hence a 'Shark Panel' is established to review progress against conditions and observer coverage, and to provide scientific and technical advice to fishery managers.
	2009	New regulations into effect, including the formalisation of a shark fishery, improved net attendance requirement, and observer coverage, and improved species level reporting and a Total Allowable catch (TAC) of 600 tonne for shark and 250 tonne for grey mackerel.
	2010	*Burdekin Sustainable Fisheries* alliance to progress with industry modifications to netting practices in response to net attributed dugong deaths in Bowling Green Bay. As of Nov 2011 the amendments developed by industry are being turned into regulations.

Management issue/ activity	Year	Key changes and adaptive management
7d. Harvest fisheries (collecting) *(assessed in 2009 Outlook Rpt as part of Fishing*)*	Unlike other fisheries, harvest fisheries require a marine park permit to operate in the GBR Marine Park. They are all dive-based hand collection fisheries with no by-catch. Updated information on these fisheries may be found at http://www.dpi.qld.gov.au/28_10916.htm	
	1988	Commercial fishery logbooks introduced, however there were few input or output controls.
	1998	Harvest Management Advisory Committee (MAC) was created by Queensland to provide advice and stakeholder and industry input to the range of harvest fisheries. This (and all other MACs) were dissolved in 2009 and replaced by a single strategic committee (Queensland Fisheries Advisory Committee).
	East Coast Tropical Rock Lobster (ECTRL)	
	2009	Quota introduced. Fishery now considered well managed with good multi-year class stocks.
	2009	Nominal quota allocated to Indigenous fishers and a small Indigenous fishing company 'Puchiwu' based out of Lockhart River, has been assisted to develop by both DEEDI and GBRMPA (with industry training support) to develop indigenous fishing business opportunity in Lockhart sea country
	2010	Fishery granted exempt status under the EPBC Act until Dec 2015. Management was assessed as being suitably precautionary and fishery assessed as low impact
	Sea Cucumber (commonly known Beche de Mer (BDM)) Fishery	
	1999	Fishery for black teatfish (*Holothuria whitmaei*) closed with the quota for this species being reduced to zero. Industry agitated for closure as they could see that competition among authority holders was leading to unsustainable stock depletion. Still little apparent recovery. Fishery focus switched to a deep water species - white teatfish (*Holothuria noblis*).
	2002 -2004	Serious concerns raised regarding the possible serial depletion of BDM. Harvest MAC BDM recommended an industry generated MOU, detailing substantially revised management arrangements. A time limited rotational zoning scheme (RZS) was developed and the fishery was divided into 154 zones of approximately 150 nm^2 that can be fished for a maximum of 15 days in any three-year period. Compliance was managed by Vessel Management System (VMS). Arrangements included size limits, species trigger limits etc and progress against these is reviewed regularly. Strict quota reporting requirements apply. Industry is now effectively two companies. Very high value product.
	Marine Aquarium Fish Fishery (MAFF) and Coral Collection (CCF) Fisheries	
	1985	Fifty coral collecting areas defined. A study evaluated the ecological sustainability of ornamental coral fishery, and found it was sustainable because the target corals grew rapidly and recruited well, and the fishery was small and restricted to limited areas.

Management issue/ activity	Year	Key changes and adaptive management
7e. Recreational fishing *(assessed in 2009 Outlook Rpt as part of Fishing*)*	2000	Coral Fishery moved to live corals, targeting small colonies, generally large polyped species which are locally abundant but patchily distributed; many of these species live in deeper (10 to 25 m) turbid water. Political concern about this fishery in GBRWHA led to intense scrutiny of coral collection, less so for aquarium fish.
	2001	CRC Tech Report (the Sustainability of Qld's Coral Fishery) provided a synopsis of the fishery and concluded the fishery did not represent a risk to reef system integrity at a reef-wide or regional scale. It also recognised the potential for localised depletion in high-use areas.
	2006	EPBC WTO assessment and export approval granted (met the Convention on International Trade in Endangered Species (CITES) 'Non-detriment findings' requirements)
	2008	Collaborative and representative Ecological Risk Assessment of the fisheries undertaken by Fisheries Qld with excellent input from science. - demonstrated it is an acceptable and well-managed activity in the World Heritage Area and this is reflected in a 2008 Case Study Report to CITES NDF (Non-detriment finding) in Mexico.
	2009	Coral Stress Response Plan for the Coral and Marine Aquarium Fish Fisheries (CSRP) and the Pro-vision Reef Stewardship Action Plan - A statement of operational standards and climate changed contingency planning (SAP). (ProVision Reef is the Peak body for MAFF fishers) These are in turn linked to the GBRMPA Coral Bleaching Response Plan. CSRP and SAP were innovative documents and strategies that reflected fisher's stewardship approach and knowledge and willingness to ensure that collecting activities do not compromise the resilience of coral reefs that are subject to a range of stress events.
	2011	Stewardship Action Plan enacted in the Keppels and a voluntary moratorium on collection imposed by industry in response to flood induced bleaching. This is currently in place and will remain so until a documented level of recovery has occurred.
	1990s	Introduction of recreational possession limits and size limits for a number of fish species including Coral Reef Finfish Species throughout QLD and GBR Marine Park.
	1993	State Government Inquiry into Recreational Fishing. Many of the recommendations of this inquiry related to a range of fisheries management, consultative and fisheries habitat matters throughout Queensland and GBR Marine Park.
	2003	Coral Reef Finfish Fisheries Management Plan introduced to initiate major management changes in the Coral Reef Finfish Fishery which predominantly operates in the GBR Marine Park. Revised recreational in-possession limits and minimum / few cases of maximum sizes introduced for many Coral Reef Finfish Species.

Management issue/ activity	Year	Key changes and adaptive management
8a. Land-based aquaculture *(assessed in 2009 Outlook Rpt as part of water quality*)*	2000	*Great Barrier Reef Marine Park* (Aquaculture) Regulations 2000 passed - these regulated potential land-based sources of environmental impacts on the GBR Marine Park associated with the discharge of aquaculture waste to waterways that lead to the Marine Park.
	2000	Aquaculture one-stop shop implemented (GBRMPA/DEWHA) - all aquaculture developments, both in and adjacent to the GBR Marine Park, now assessed under the EPBC Act and GBRMP Act; effective co-ordinating a single Commonwealth assessment and approval process meeting legislative requirements of both Acts.
	2005	Accreditation of Queensland Law under the *GBR Marine Park (Aquaculture) Regulations 2000*. Negotiations with industry and Queensland resulted in the Australian Government Minister accrediting Queensland law as providing the requisite degree of protection for GBR ecosystems.
8b. Water- based mariculture (assessed in 2009 Outlook Rpt as part of Fishing*)	1998	*Whitsundays Plan of Management* determined no aquaculture developments permitted within the planning area.
	2000	Aquaculture one-stop shop implemented (GBRMPA/DEWHA) - all aquaculture developments, both in and adjacent to the GBR Marine Park, now assessed under the EPBC Act and GBR Marine Park Act.
	2004	*Position Statement on Aquaculture* within the GBR Marine Park – outlines GBRMPA's approach to assessing applications for the development of aquaculture operations in the Great Barrier Reef Marine Park.
	2006	EPBC Act Policy Statement for Offshore Aquaculture - refers specifically to aquaculture developments in the GBR World Heritage Area and provides advice on when to refer potential development of aquaculture operations for assessment and approval under the EPBC Act.

Management issue/ activity	Year	Key changes and adaptive management
9. Defence activities*	2001	Phase out of large high explosive training in Halifax Bay - ceased all aerial bombing in the Bay and relocated air weapons range to High Range training area northwest of Townsville.
	2002	Formal policy for Defence Environmental Strategic Plan and regional Environmental Management Systems (EMS) - states Defence will be a leader in environmental stewardship and dictates six pillars of environmental performance. Environmental Management Plans outlining management procedures for training areas (Cowley Beach, Halifax Bay and Shoalwater Bay), and regional site EMS's were developed under the auspices of the Policy.
	2005	Risk assessment of Defence activities conducted by Defence and GBRMPA staff, following Australian risk standard. Indicated the majority of Defence activities in the GBRWHA had minor or negligible consequences provided the level of intensity remains stable.
	2006	*Strategic Environmental Assessment* (SEA) of Defence activities in the GBRWHA - formed a management framework for Defence activities in the GBRWHA; this indicated Defence activities unlikely to have significant effects on the World Heritage values of the area.
	2008	Shoalwater Bay State of the Environment Report - regionally produced report detailing the current state of Shoalwater Bay Training Area in accordance with United Nations Environment Program recommendations.

Management issue/ activity	Year	Key changes and adaptive management
10. Scientific Research*	1985	AIMS long-term *monitoring program* commenced – this is now the longest and most comprehensive data set on the health of the Great Barrier Reef, spanning well over 20 years.
	1994	Cooperative Research Centre for the Great Barrier Reef (CRC Reef) established - a knowledge-based partnership of managers, researchers and industry that planned, funded and managed world-leading science for the sustainable use of the GBR World Heritage Area while ensuring that ecosystem quality is maintained.
	2001	First edition of Research Priorities for management of the GBR and WHA published - a detailed process aimed at clearly identifying and prioritising our information needs; the first comprehensive report on the strategic research priorities of the GBRMPA.
	2004	"Policy on *management of scientific research* in the GBR Marine Park" - supports and streamlines the management and conduct of research activities in the GBR Marine Park and to bring equity to the research community.
	2005	Centre of Excellence for coral reef studies established at James Cook University - this centre, through its world leading scientists, is producing some of the most critical research for management of the GBRMP.
	2010	*"Scientific information needs* for the management of the GBR Marine Park" - a complete revision of science information needs based on the outcomes of the outlook report. This is the primary tool for guiding investment in research and monitoring.
	2011	Social and economic long-term monitoring program established – aims to provide sufficient social and economic data to assist the GBRMPA and industry bodies to understand changes that are occurring within the GBR and to make plans for the future.

Management issue/ activity	Year	Key changes and adaptive management
11a. Species conservation *(assessed in 2009 Outlook Rpt as Biodiversity protection*)*	1985	Aerial surveys of dugong commence. Aerial surveys have been conducted approximately every five years since 1985 and have been the primary census method for determining such aspects as the current distribution and abundance of dugong in the GBRWHA; and identifying areas of high conservation value for future management consideration.
	1996	*Marine Wildlife Stranding* program implemented to improve understanding of the causes of mortality of marine animals around Queensland; an important tool for identifying 'hotspots' for marine strandings, which can then lead to management changes such as the implementation of 'go-slow zones.'
	1997	Removal of fixed nets set for bather safety under the Queensland Shark Control Program from most beaches in the GBR Marine Park. Despite the removal of most shark protection nets, several dugong and inshore dolphins drown each year in the remaining ten nets (five nets off Cairns and five nets off Mackay).
	1998	Gazettal of 16 Dugong Protection Areas (DPAs) under the Queensland Fisheries Act. DPAs are complemented by *Special Management (Dugong Conservation)* Areas gazetted under the GBR Marine Park Zoning Plan.
	2000	Mandatory requirements to install turtle excluder devices (TEDs) in otter trawlers operating in the East Coast Trawl Fishery under the Queensland Fisheries Regulations. Ongoing monitoring has revealed that the numbers of marine turtles being landed on trawlers is almost negligible. The recorded recovery of the East Coast loggerhead stock (*Caretta caretta*) that nests around central Queensland has been attributed to the implementation of the TEDs
	2005	Policy on managing activities that include the *direct take of a protected species* from the GBR Marine Park - provides a framework for the consistent and effective management of activities that include the direct take of a protected species from the GBR Marine Park.
	2007	Reducing the impact of Queensland's trawl fisheries on protected sea snakes - testing of suitable types of by-catch reduction devices indicate that correct placement of these devices in the trawl cod-end does significantly reduce sea snake mortality without affecting the catch rates of prawns.

Management issue/ activity	Year	Key changes and adaptive management
11b. Habitat conservation *(assessed in 2009 Outlook Rpt as Biodiversity protection*)*	2003	*Seabed Biodiversity Project 2003-2007* - a $9 million collaboration among four research partners (AIMS, CSIRO, Queensland Department of Primary Industries and Fisheries (QDPI'F), and the Queensland Museum), to map non-reef habitats and their biodiversity throughout the Marine Park in depths of 10 - 150 metres.
	2003	*Representative Areas Program* and rezoning of the GBR Marine Park - 70 major habitat types were identified in the GBR and a new Zoning Plan developed, based on protecting 'representative' examples of each habitat type. Overall 33% of the GBR Marine Park is now within a network of highly protected 'no-take' zones. A minimum of 20% of each habitat type is now protected, with a higher percentage in many habitats, especially offshore.
	2004	Queensland Government introduces complementary zoning in state waters 'mirroring' the GBR Marine Park zoning and ensuring seamless management approach for all waters in the GBR World Heritage Area.
	2009	Deepwater seagrass mapping and modelling, Waters deeper than 15 m in the GBR World Heritage Area were surveyed using a camera and dredge; 1426 sites were surveyed, spanning from 10 to 25°S, and from inshore to the edge of the reef (out to 120 nautical miles from coast). Seagrasses in the study area were found to extend down to water depths of 61 m.
12. Island Management	1998	The first *island management plans* prepared included Holbourne Island NP, Hope Islands NP, Keppel Bay Islands NP (Scientific), Michaelmas and Upolu Cays NP, Turtle Group NP, Two Islands NP. A considerable number of island national parks now have management plans, and others are presently being developed (e.g. Capricornia Cays NP).
	2004	The first Hinchinbrook Island Fire Management Strategy was approved under the QPWS Fire Management System. Ongoing monitoring and further knowledge of Hinchinbrook Island vegetation and response to fire has enabled gradual modification of that strategy.
	2007	Gazettal of the *Raine Island National Park (Scientific)* - the site of the world's largest known rookery for green turtles (*Chelonia mydas*), which come ashore in the thousands to nest each year. Also most significant seabird rookery in the GBR World Heritage Area. Previously listed as a Nature Refuge it is now afforded the highest protection under Queensland's nature conservation laws and both Commonwealth and Queensland marine parks laws.
	2008	Whitsunday and Mackay Islands *Visitor District Management Strategy* - provides the framework and guidelines for managing visitors to national park islands in the Whitsunday and Mackay area. It sets out the considerations, outcomes and strategies that will form the basis on which day-to-day management decisions will be made; with particular emphasis on integrated planning and policies across islands, beaches and the surrounding GBR Marine Park.

Management issue/ activity	Year	Key changes and adaptive management
13a. Traditional use of marine resources*	1997	Marine Park Authority Board passed a policy: 'Management will recognise that the GBR evolved in the presence of Aboriginal people; and will enable Aboriginals and Torres Strait Islanders to pursue their own lifestyles and cultures, and have the responsibility for areas and resources relevant to their heritage, within the bounds of nature conservation and ecologically sustainable use.'
	2002-03	The traditional use of marine resources agreement (TUMRA) approach was developed based on extensive consultation and advice from Traditional Owners (TOs), Indigenous communities and representative bodies. More than 200 meetings with Traditional Owners, the Aboriginal and Torres Strait Islander Commission and Native Title Representative Bodies to discuss the proposed TUMRA framework.
	2004	Amendments to the *GBR Marine Park Zoning Plan 2003* to better recognise traditional use of marine resources. Changes included provisions for Traditional Owners, TUMRAs, Special Management Areas for cultural and heritage values, recognition of traditional and cultural activities under the Native Title Act 1993. Since then, the following TUMRAs have been accredited – Girringun (2005, 2008, 2010); Dharumbal (Woppaburra Section) (2006); Mamu (2008); Wuthathi (2008); Kukuu Ya'u ILUA (2009), Port Curtis Coral Coast (2011). Today approx. 30 per cent of the GBR reef area is covered by TUMRAs.
	2008	Australian Government committed $10 million over five years towards the Reef *Rescue Land and Sea Country Indigenous Partnerships Program* under the Caring for our Country initiative. The program actively engages Aboriginal and Torres Strait Islander communities in the management and protection of the reef's marine resources and cultural diversity.
13b. Protection of Indigenous cultural heritage	1993	*Native Title Act 1993* - This Queensland legislation works to validate past acts, and intermediate period acts, invalidated because of the existence of native title, and to confirm certain rights in accordance with the Commonwealth Native Title Act to ensure that Queensland law is consistent with standards set by the Commonwealth Native Title Act for future dealings affecting native title.
	1999	Recognition of Indigenous places names - Agreement on allocation of an Indigenous place name (eg. to a reef) involves extensive collaboration between GBRMPA and the community, Traditional Owners, State and Federal governments.
	2000	*Story Place* – a reference database that holds resources about Traditional Owner groups adjacent to the GBR - aims to share information and knowledge about Traditional Owners and their relationship with land and sea country, Indigenous history and co-operative management practices within the GBR region dating from 1907. Information is updated regularly.
	2004	Queensland legislation to protect Indigenous cultural heritage (the *Aboriginal Cultural Heritage Act 2004* and *Torres Strait Cultural Heritage Act 2004)* - protect significant Indigenous areas or objects, establish a Cultural Heritage Register which provides controlled access to Indigenous Sites Database of approximately 30 000 sites.
	2005	GBR *Heritage Strategy* produced - it included an Indigenous Heritage Strategy (Attachment 5) and was approved by the Minister in early 2006.

Management issue/ activity	Year	Key changes and adaptive management
14. Heritage* protection	1976	*Historic Shipwrecks Act 1976* enacted. The Act covers some 350 shipwrecks in the GBR from illegal damage, disturbance, removal or disposal. Queensland has complementary legislation, which protects historic shipwrecks in State waters, such as bays, harbours and rivers. DSEWPaC maintains a database of Australia's shipwrecks and administers the Act in conjunction with the states.
	1981	Great Barrier Reef inscribed on the World Heritage List under all four natural heritage criteria.
	1997	Report on "*The Outstanding Universal Value of the Great Barrier Reef World Heritage Area"*. Known as the *'Lucas Report',* it was a compilation of scientific and other information on the natural and cultural values of the GBR World Heritage Area and an inventory of many of its species.
	2000	*EPBC Act* provides protection for Australia's World Heritage (WH) properties (this replaced the *World Heritage Properties Conservation Act 1983)*. The EPBC Act provides automatic protection for WH properties by ensuring that an assessment process is undertaken for proposed actions that will, or are likely to, have a significant impact on the WH values of a declared WH property. This process allows the Commonwealth Minister to grant or refuse approval to take an action, and to impose conditions on the taking of an action.
	2004	Lady Elliott Is, Dent Is, North Reef Light station and Shoalwater Bay Military Training Area listed on Commonwealth *Heritage List*
	2005	GBR *Heritage Strategy* produced - it outlines actions for identifying, assessing and monitoring the GBR Marine Park's heritage values, the development of a heritage register and preparation of heritage management plans. The draft Heritage Strategy was approved by the Minister in early 2006.
	2008	GBR *Marine Park Act* amended to better consider heritage values and World Heritage in the legislation. Main object of the Act amended "to provide for the long term protection and conservation of the environment, biodiversity and heritage values of the GBR Region" and consistent with that main object... "(c) assist in meeting Australia's international responsibilities in relation to the environment and protection of world heritage ". Low Isles listed on the Commonwealth Heritage List.

Management issue/ activity	Year	Key changes and adaptive management
15a. Island invasives	1988	Goats, sheep, cats and fowl eradicated from South Molle Island and goats eliminated from Lindeman Island after causing destruction of vegetation habitat and erosion of soil; these are large National Park continental islands with major tourist resorts requiring a cooperative approach between QPWS and the resort manager.
	2002	Island Risk Assessment System implemented. System assesses the risks of prioritising weeds and problem animals (pests) to the value to islands, allowing the setting of action priorities. System recognised different pests have different risks to the key values on different islands. The highest pest risks were introduced predators (pigs, foxes, cats and rats) on nesting turtles and birds on Curtis and Magnetic Islands; pig impacts on habitat on Hinchinbrook and Dunk Islands; and cane toads as a new invasive on Hinchinbrook Is. The highest weed priority was rubber vine invading habitat of endangered rock-wallabies on Gloucester Island.
	2006	Big-headed ants and scale *insects controlled* on Wilson Island - *Pisonia* forests were defoliated by the scale insects protected by big-headed ants; treatment of the insects by introducing predators (wasps and ladybird bugs) enabled the *Pisonia* to survive and re-foliate, and was very successful in reducing invertebrate numbers to allow the recovery of the *Pisonia* trees.
	2009	Queensland-wide Pest Management system adopted for all QPWS managed areas including islands – provided improvements for setting priorities and undertaking pest management. Pest impacts on conservation values on small islands recognised as high, especially if they are breeding habitat for seabirds and turtles.
15b. Marine invasives	2001	At-sea/ocean exchange of ballast becomes mandatory for all vessels entering Australian waters under National Ballast Water Management Arrangements.
	2004	Successful eradication of *Asian green mussel (Perna viridis)* infestation, introduced from a foreign fishing vessel, in Cairns port.
	2006	Three cases of Asian green mussels detected on vessels in ports and treated before they spread to the port; however for marine bio-fouling there is no systematic inspection or treatment of vessels entering the GBR Marine Park or ports adjacent to the GBRWHA. Highest risks of bio-fouling are work vessels such as dredges, tugs and barges from Asian ports such as Singapore with high resident populations of marine pests
16a. Renewable energy	2008	Commonwealth Islands resilience projects initiated - Low Isles and *Lady Elliot* Island have moved to solar panels, renewable energies and environmentally friendly fuels, aiming at achieving 100 per cent carbon neutrality.
	2009	Working closely with reef-related industries and communities to reduce their greenhouse gas emissions for instance, by encouraging the tourism industry to be a “Climate Action Leader” providing tools such as the *Tourism Emissions Calculator* ; also a Fisheries Emissions calculator, and awareness of renewable energy technologies and best practice.

Update on key conservation issues for the Great Barrier Reef since Outlook 2009

Introduction

The *Great Barrier Reef Outlook Report 2009* concluded that the GBR ecosystem is at a crossroad, and decisions made in the next few years are likely to determine its long-term future. Unavoidably, future predictions of climate change dominate most aspects of the GBR's outlook over the next few decades.

The Australian and Queensland governments prepared an interim response to the 2009 Outlook Report, which identified and accelerated key actions that will ensure the GBR stays one of the best marine protected areas in the world. The governments' response can be viewed online at: http://www.environment.gov.au/coasts/gbr/gbr-outlook-response.html

In summary, the overwhelming factor still driving the outlook for the GBR is climate change. Building and maintaining resilience is central to protecting the GBRWHA, and will give it the best chance of adapting to and recovering from the serious threats ahead.

In the other areas highlighted in the outlook report, major advances have occurred since 2009. For example, through the Reef Water Quality Protection Plan, the Australian and Queensland governments are taking significant steps and contributing substantial investment to improve water quality flowing from agricultural lands into the GBR. Similarly, new arrangements were introduced in late 2009 that significantly improved fisheries management for one of the most significant fisheries in the GBRWHA – the east coast net fishery. There have also been advances in the area of coastal development with new policies put in place to protect high-value ecosystems.

The 2014 Outlook Report

The Great Barrier Reef Marine Park Authority is required by law to produce an outlook report every five years. The next report is due to the Australian Government Environment Minister by June 2014. The process for developing the 2014 Outlook Report has begun.

Emerging issues that have become apparent since the 2009 Outlook Report that will be considered as part of the assessment process for the 2014 report include increases in shipping activity as a result of port expansions; population growth as a result of expanding urban and industrial activities along the GBR coast; coastal development and intensification and changes in land use within the GBR catchment; the impacts from marine debris; illegal activities; and extreme weather events including floods and cyclones.

With increasing population growth and an expanding mining industry in Queensland, it is anticipated that coastal development will remain a priority management issue that requires greater focus in coming years. As a result, the comprehensive strategic assessment and other continuing improvements to management of the coastal zone will be critical in the improving the outlook for the GBR.

Management will continue to adapt and respond to these emerging issues, as has occurred repeatedly in the past.

Update on key issues for the GBR

The aim of this part of Chapter 2 is to provide an update on the four key conservation issues facing the GBR that were highlighted in the 2009 Outlook Report, taking into account both the management actions outlined in the previous sections and any emerging threats.

Changing climate

Outlook 2009 outlined some of the impacts from climate change that are already occurring, and identified that all parts of the GBR ecosystem are vulnerable to its increasing effects, with coral reef habitats the most vulnerable.

Climate change has now well and truly become a mainstream issue, with climate-related events and projected changes now regularly discussed both by the media and within government. The GBR has become an important feature of these discussions, due to its iconic status as one of the most vulnerable ecosystems in the national and global landscape.

Adding to the weight of scientific evidence that changes in climate are already occurring is the personal experiences of many Australians, who are becoming increasingly aware of the vulnerability of both ecological and social systems to climate change through personal experiences with recent extreme weather events such as cyclones and floods. Projected long-term changes such as droughts, floods, storms and rainfall intensity have a range of implications for GBR health including elevated risks of sedimentation, algal blooms, storm damage and crown-of-thorns starfish outbreaks.

While Australia is committed to direct action on climate change, reducing the impact of non-climate pressures may be the only feasible option to slow the rate of climate-related impacts.

Management of high priority and emerging issues

Climate change is the single most significant threat to the GBR but is a global issue requiring a global solution. Australia has a comprehensive strategy to address the challenges of climate change. Significant advances have occurred to address the issue of climate change broadly, by reducing Australia's greenhouse gas emissions, implementing a carbon price, promoting energy efficiency and developing and implementing adaptation strategies.

Building and maintaining resilience is central to the Australian and Queensland governments' efforts to protect the GBR. A range of management reforms have been implemented over recent years, which have significantly reduced the impact of non-climate pressures on the GBR. Both GBRMPA and the Queensland Government continue to update their climate change adaptation strategies, which contain measures aimed at supporting resilience in the GBR.

In recent years a collective awareness has developed of the shared challenges represented by climate change, and of the benefits of collaborative responses. Due largely to the efforts by key agencies, reef -related industries have a much greater awareness of the implications of climate change and an increased capacity for adaptation to changing conditions.

They are also much more focused on their roles as stewards of this great natural resource. For example:

- following reports of increases in dugong and turtle deaths, key Traditional Owner groups have voluntarily reduced traditional hunting activities in affected areas;
- the marine aquarium collection industry activated their 'Coral Stress Response Plan' and placed a voluntary moratorium on collecting of sensitive species in affected reef locations. Aquarium collectors have also played a key role in assessing impacts from flood plumes in the southern parts of the GBR; and
- the Coral Reef Fin Fish Fishery is working with the GBRMPA and Fisheries Queensland to identify strategies to improve the ecological, economic and social resilience of the fishery after extreme weather events.

Extreme weather impacts

For the last nine summers the GBR has not been widely impacted by mass bleaching events (the most recent severe bleaching occurred in 2001-02), but major impacts have occurred in recent years due to severe floods and destructive cyclones.

Flooding

The summer of 2010-11 was the second wettest on record for Australia, and for southeast Queensland rainfall was 300-400 per cent higher than normal. This unusually intense rainfall caused extensive and unprecedented flooding in many coastal areas of southern Queensland, including several GBR catchments. A large expanse of the inshore GBR Region south of Mackay was exposed to persistent flood plumes from the Fitzroy, Burnett and Mary Rivers.

Cyclones

Cyclone Yasi, one of the largest and most powerful cyclones to affect Australia since records began, crossed the Queensland coast near Mission Beach on 3 February 2011. The coast and adjacent areas of the GBR were exposed to wind gusts up to 285 kilometres per hour. The cyclone's wind boundaries were extensive, with gale force winds affecting 26 per cent (89 090 square kilometres) and destructive winds affecting 13 per cent (45 768 square kilometres) of the GBR. Approximately six per cent of the reef area in the GBR Marine Park suffered severe damage.

Cyclone Yasi had been preceded by Cyclone Anthony, which crossed the coast south of Townsville on 30 January 2011 as a Category 2 storm. **Figure 3** shows the extent of the GBR which has been impacted by severe cyclones in the six year period 2005-2011.

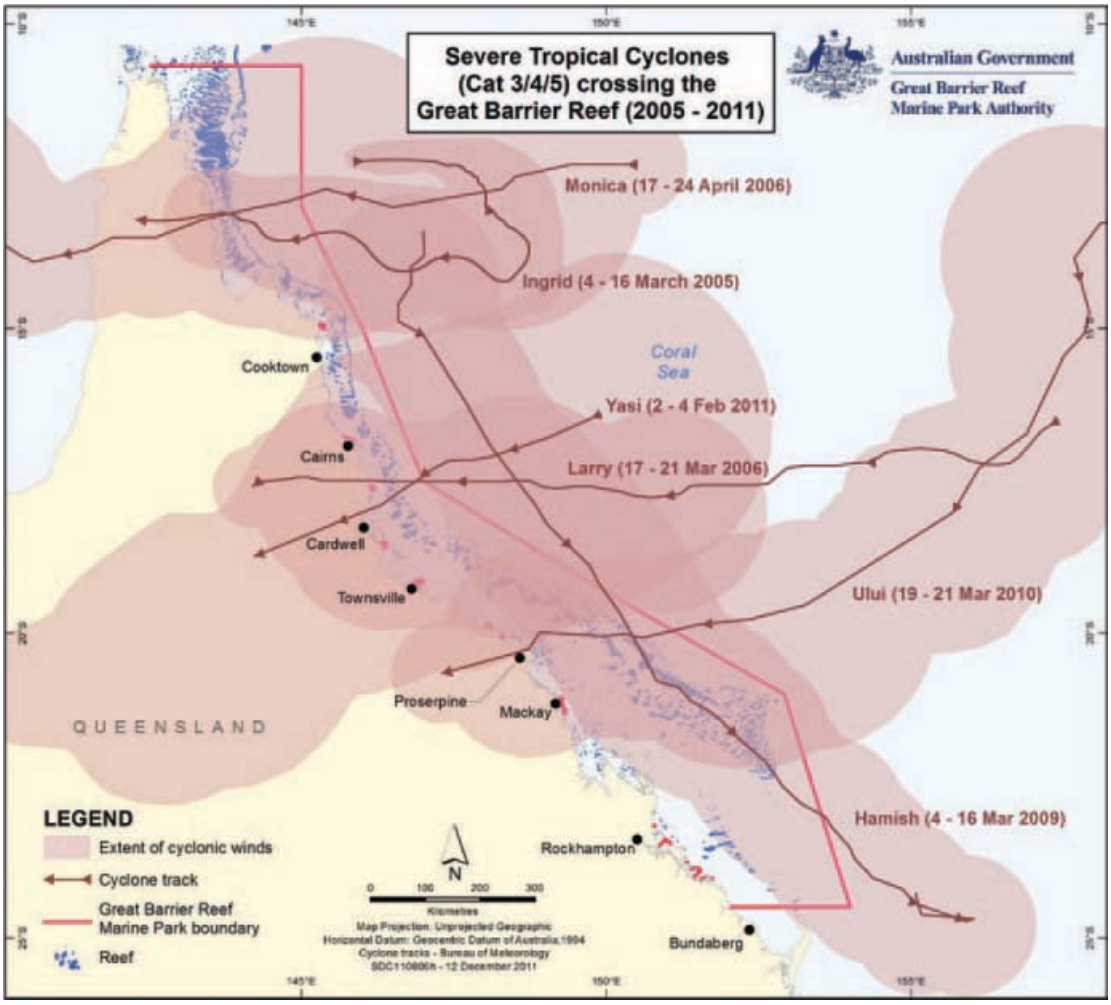


Figure 3: Extent of the GBR impacted by severe cyclones in the period 2005-2011

Extreme weather events can affect the condition of large areas of the GBR ecosystem. Following cyclones and floods in 2010-11, there were significant and often highly visible changes in GBR health within days and weeks. A detailed assessment report on the impacts of Yasi is available online at: http://www.gbrmpa.gov.au/__data/assets/pdf_file/0008/8783/GBRMPA_ImpactsTC_Yasi_onGBRSept2011.pdf.

Initial assessments of the impacts of the extreme weather events of 2010-11 indicate the following.

- **Coral reefs:** Exposure of coral reefs to the impacts of Cyclone Yasi was extensive. Underwater surveys indicate that 15 per cent of the total reef area sustained some coral damage, with six per cent severely damaged. The loss of corals was not uniform even in the worst cyclone- and flood-affected locations, with some areas of relatively undamaged reef remaining that will assist in the recovery process. Nevertheless full recovery of reefs will take decades.
- **Seagrass:** Seagrass loss has been extensive in areas between Cairns and Hervey Bay. The recent floods and cyclones have come on top of the cumulative impacts of multiple recent,

harsh, wet seasons which appear to have reduced seagrass resilience. As a result, the ability of seagrasses to recover is uncertain in some areas.

- **Dugong and green turtles:** Dugong and green turtles feed almost exclusively on seagrass and given the seagrass loss as a result of recent flooding and cyclone events, the flow-on impact has been unprecedented. The number of dugong and marine turtles strandings across Queensland has already exceeded all previous years since the marine stranding reporting program began in 1996 (see http://www.gbrmpa.gov.au/outlook-for-the-reef/extreme-weather/dugong-and-turtle-strandings). It is unclear what might happen in the foreseeable future. Dugongs and green turtles are expected to move in search of food. These movements will be closely monitored to manage and reduce the impacts of activities such as netting, vessel operations and traditional hunting.
- **Crown-of-thorns-starfish** *(Acanthaster planci)***:** Post-cyclone surveys have found high numbers of crown-of-thorns starfish on a number of reefs, raising concern that further outbreaks might occur.
- **Islands:** Aerial photographic surveys of islands have revealed that a number of cays have disappeared or altered in shape and size, and several new rubble cays have appeared.

The 2010–11 floods and cyclones also impacted the tourism industry and commercial fisheries in the GBR, with significant flow-on implications for both industries. In the case of commercial fishing, management arrangements for the net, reef line and aquarium supply industries are necessarily taking account of these impacts. Impacts may yet be seen in the prawn trawl fishery.

Coastal Development

The 2009 Outlook Report identified that coastal development is increasing the loss of coastal habitats that support the GBR. Human population within the GBR catchment is projected to increase by nearly two per cent per annum, placing greater pressure on the ecosystem and increasing use of the GBR region.

Population growth in the GBR catchment continues to occur at rates faster than the Australian average, especially along the coast. The current population of the GBR catchment is expected to grow by 40 per cent to 1.58 million by 2026 (see Figure 4). The majority of this population is expected to live on or near the coast. For example, Townsville is projected to grow from approximately 191 000 to 300 000 by 2031. This puts pressure on governments to ensure sustainable urban planning and development that can support this growth.

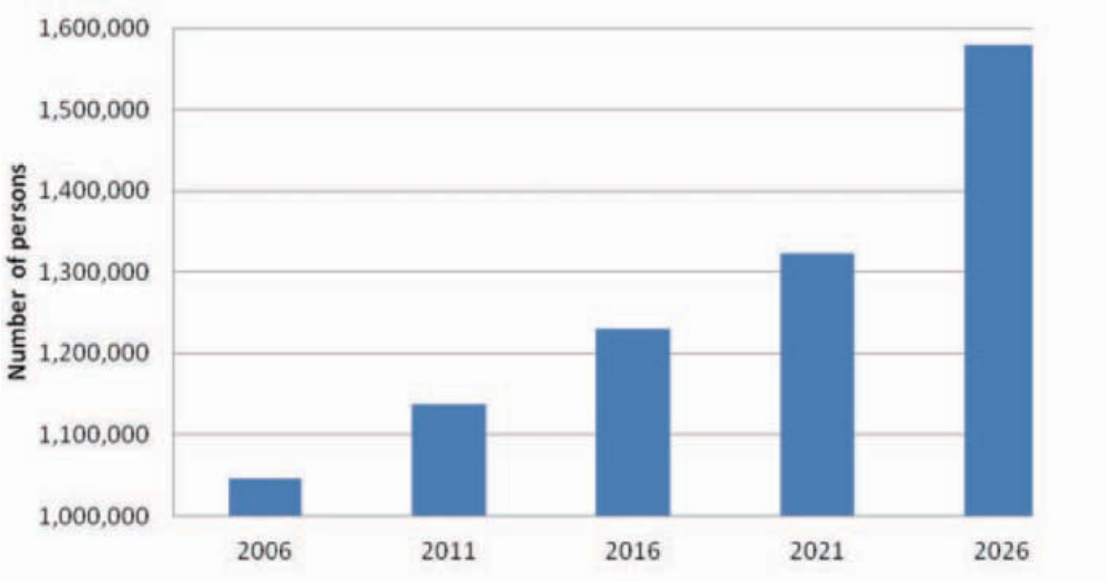


Figure 4: Population growth in the Great Barrier Reef catchment
Actual (2006) and projected growth (2011-2026) Source: Australian Bureau of Statistics

Population change is also contributing to increased recreational reef use. For example, the number of registered recreational vessels adjacent to the GBR has increased steadily since data has been collected (Figure 5).

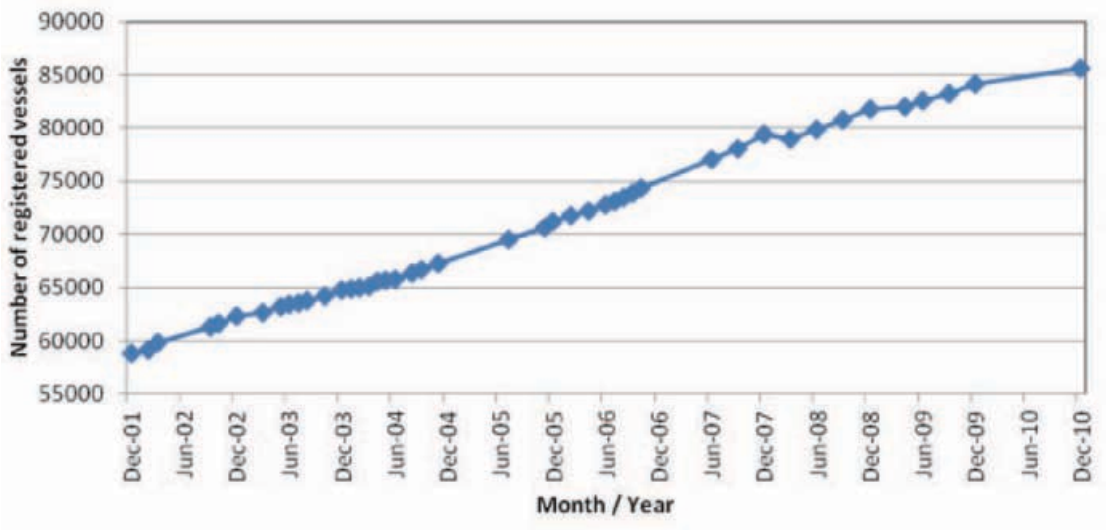
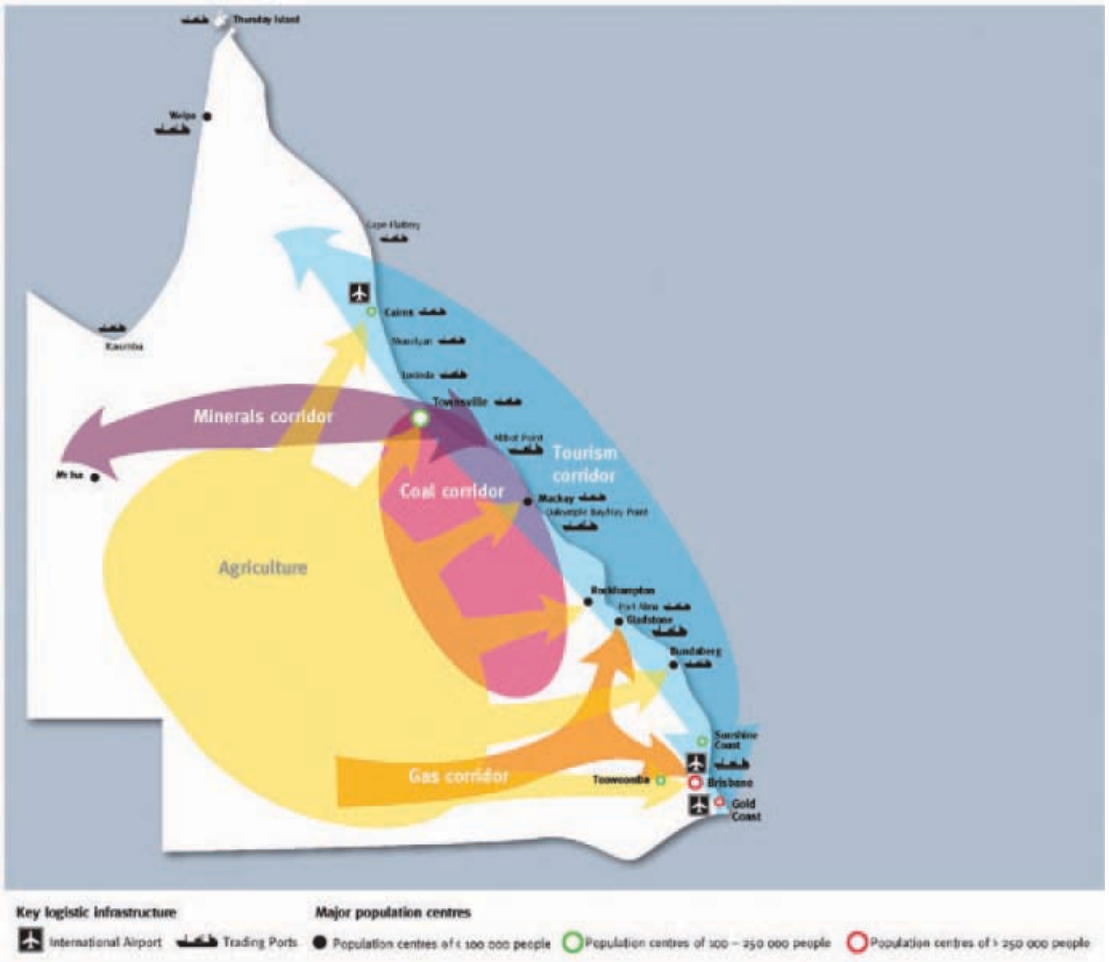


Figure 5: Recreational vessel registrations in the Great Barrier Reef catchment

Greater use of the GBR may lead to resource allocation issues between sectors (fishing, tourism) and within sectors (commercial, recreational, Indigenous fisheries). Increased population growth will lead to increased recreational fishing pressure as well as increased demands for seafood. Traditional fishing issues and Indigenous commercial fishing aspirations will gain greater prominence and will need to be resolved in the context of overall resource allocation. Local depletion, particularly of some inshore fish species, is of concern in some areas.

There have been few studies of the impacts of increasing recreational use of the GBR. The distribution of boat ownership and the size of vessels owned suggest that any impacts are likely to be mainly inshore, close to major regional centres. The impacts on the GBRWHA may include anchor damage to corals and seagrass meadows, along with littering, boat strikes on marine mammals and turtles, and damage to corals from snorkelling and diving. Disturbance of wildlife (particularly species of conservation concern) is possible and there is some risk of introducing species through fouling on recreational vessels, especially those from overseas.

Patterns of economic land use in GBR catchments in port hinterlands are changing in response to population growth, changes in international demand for mineral and energy resources, shifting global markets and technological developments such as biofuels and coal-gas projects (see Map 4). This rapid development has in some cases severely stretched the capacity of local government infrastructure to cope with the increased demand on its services.



Map 4: Queensland current economic zones

There are currently four major trading ports and six other trading ports along the GBR coast. More than 3500 ships operated in the GBRWHA in 2007, making more than 9700 voyages – a figure that has increased over the past 10 years, driven mainly by industrial and mining activity. In the coming five years it is anticipated that there will be a 20 per cent increase in shipping

traffic within the GBR, primarily driven by bulk commodity exports, focused around existing and future expansions in the Queensland resources ports.

For example, the Port of Gladstone forecast that by 2014-15, ship arrivals at the port will increase by 31 per cent to more than 2000 annually and by more than 66 per cent by 2018-19. By that time, the port predicts that the number of shipping movements will exceed 2500. Forecast ship arrivals are expected to increase by 20 per cent from 2010 to 2016 and 66 per cent from 2010 to 2025 (see Figure 6).

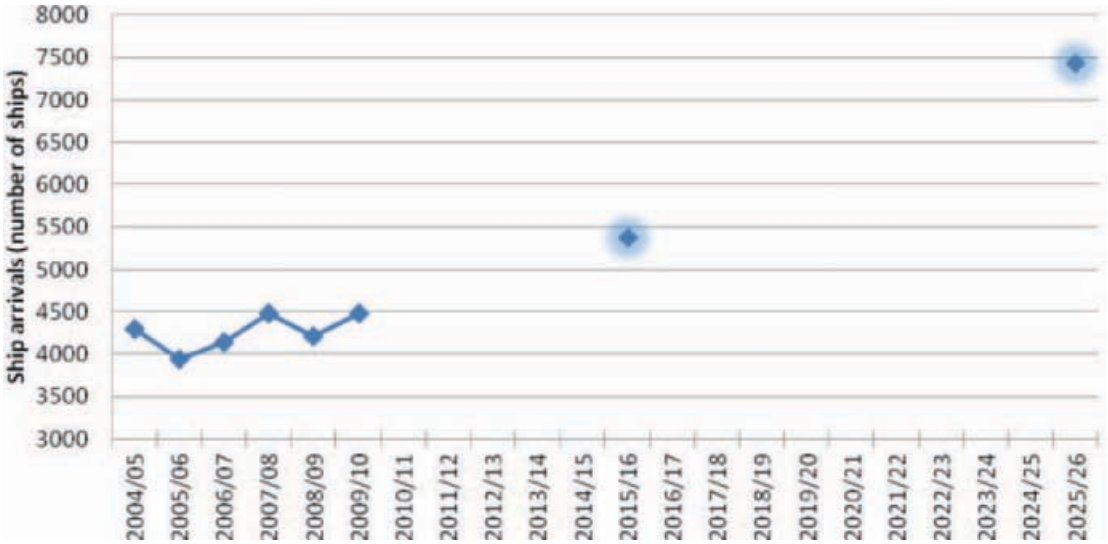


Figure 6: Ship arrivals in ports adjacent to the marine park

Shaded dots show the following AMSA predictions for shipping growth *in Australia*, which are dominated particularly in the northwest of Australia and along the eastern seaboard (i) 2010 to 2016 – 20 per cent growth in shipping; (ii) 2010 to 2025 – 66 per cent growth in shipping. Source: Maritime Safety Queensland.

The total amount of coal exported through the GBR is forecast to significantly increase within the next decade due to port capacity expansions which are currently underway (such as Abbot Point and Wiggins Island) and expansion projects which are proposed but which have not yet been approved (see Table 2).

It should be noted that a significant proportion of the proposed capacity within the next decade shown in Table 2 relates to projects that have not yet been considered or approved by state or Commonwealth governments. In addition, some of the proposed expansions are not currently supported by the relevant ports corporations and therefore may not proceed, for example Fitzroy River and Metro Coal (which is included in the Port of Gladstone figure). Therefore, the proposed capacity figures in Table 2 represent the upper range of possible future exports.

It should also be noted that no coal port in Queensland has actually exported at more than 75 per cent of its nominal capacity due to total coal chain system interactions (including weather), which impact on capacity and because terminal expansions have to occur well ahead of planned throughput.

Table 2: Queensland coal industry and the GBR World Heritage Area: actual exports, current capacity and proposed future capacity

These figures are compiled from published referral and EIS documentation for the proposed projects (hyperlinks to reference material are provided for each location).

Location	Actual Exports 2010-11 (Mtpa)	Current Port Export Capacity	Proposed Capacity within the next decade (Mtpa)
Abbott Point (offshore berths T0-T3)	15	50	205*
Abbot Point (T4-T9) Multi-cargo facility	0	0	180
Dalrymple Bay	54.7	85	85
Hay Point	33.1	44	55
Dudgeon Point #	0	0	180
Balaclava Island	0	0	35
Fitzroy River	0	0	22
Gladstone Port	53.3	77	190
Wongai project	0	0	1.5
Total	156.4	256	953

*Three new proposals for coal export expansion at Abbot Point: BHP (60mtpa) , Hancock (60mtpa) and Adani (35mtpa)

#The master planning for Dudgeon Point has maximised the stockyard footprint within the area allocated for development in the Land Use Plan and there will be no land left for further development of the site after award of the proposed land allocation. This supports a nominal throughput at Dudgeon Point of at least 120 mtpa as multi-user terminals, However the allocated area may achieve up to 180 mtpa depending on stockyard configurations and how they are operated.

The two most significant risks to the GBR associated with increased shipping activity are for an accident to occur, which results in a major oil or chemical spill, adversely impacting key habitats and/or populations of species of conservation concern; and the possible introduction of invasive marine species. Both have the potential to cause extensive, long-term damage to the environment, as well as economic and social impacts. Other activities such as shipping outside designated shipping areas individually have the capacity to have extensive ecosystem impacts on habitats.

As more goods are shipped through the GBR, the likelihood of a major incident (such as a grounding or oil spill) increases as do the number of smaller incidents such as illegal discharge of bilge and ballast.

Management of high priority and emerging issues

The Australian Maritime Safety Authority (AMSA), the Great Barrier Reef Marine Park Authority (GBRMPA) and Maritime Safety Queensland (MSQ) work closely together to protect the marine environment from adverse consequences of shipping operations and provide for the safety of ships' crews, passengers and other users of the GBR. As a result of the comprehensive management arrangements for shipping, there have been few incidents relative to the large number of shipping movements in and through the GBR. However, the recent grounding of the Shen Neng 1 in the southern part of the GBR identified the need for further improvements in management arrangements to minimise further risks associated with recent changes in shipping activities.

A new offence has been created in 2011 under the *Navigation Act 1912* for operating a vessel in a manner which causes pollution or damage and penalties have been increased for failure to report an incident by a ship in the GBR Marine Park. Additionally, penalties have been increased under the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* for the discharge of oil or oil residues by ships in Australian waters to $11 million for an aggravated offence.

In January 2011 the Australian Government released a national ports strategy aimed at creating a coordinated approach from all levels of government to planning for ports and their road and rail links.

In response to the national strategy, the Queensland Government is developing a Queensland Ports Strategy (QPS) to identify key principles that underpin the development of port infrastructure and associated supply chains; this will provide an integrated framework for strategically planning expansions, minimising environmental and social impacts (including impacts on the marine environment) and optimising the use of existing infrastructure.

The QPS aims to better integrate ports planning and planning for associated land-side infrastructure including transport corridors. It will focus on improved long-term integrated planning at all levels around relevant ports, jurisdictions, regions and precincts, and will specify key ports and their expected roles and functions, helping to inform the GBR strategic assessment.

Management response - planning and assessment frameworks

The Queensland Government has a range of integrated planning and land-use policies to ensure the state can support Queensland's growing economy and population while managing competing interests (such as environment, urban sprawl, agriculture, mining and related infrastructure) in a sustainable way.

Significant improvements have been made recently with the introduction of the Queensland Coastal Plan and the State Planning Policy 4/11: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments, which both protect key coastal ecosystems and high value habitat.

Regional plans for Central Queensland and North Queensland will also continue to be rolled out in coming years and be informed by the strategic assessment.

Development assessment processes will continue to take account of world heritage matters and will also be informed by the strategic assessment and any improvements that are recommended as part of that process.

Coastal development is likely to remain an important area of focus in coming years and further improvements are anticipated as these issues emerge.

Water quality

One of the most significant impacts on the outlook for the GBR remains poor water quality. The 2011 flooding has been a further reminder of how much sediment, nutrients and pesticides are delivered to the GBR from agriculture during flood events and the impact that has on seagrass health and the health of those animals that rely on good quality habitat such as dugong and turtles.

The first reef water quality report card was released in August 2011 (http://www.reefplan.qld.gov.au/measuring-success/report-cards/first-report-card.aspx) and showed that the GBR is in moderate condition overall. Key results included that:

- regional variability is evident – the Mackay-Whitsunday area shows poor condition of seagrass, and inshore coral reefs in the Burdekin region are in poor condition;
- high rainfall in the GBR catchment (particularly in the Burdekin and Fitzroy regions) between 2007 and 2009 resulted in large flood plumes reaching marine waters;
- total catchment loads across the GBR are five to nine times the natural loads for total suspended solids, nitrogen and phosphorus;
- fourteen million tonnes of sediment are washed into the GBR annually as a result of human activity;
- the annual load of dissolved nitrogen is 31 000 tonnes – this means potentially millions of dollars worth of fertiliser is being wasted; and
- an estimated 28 000 kilograms of pesticides still enter the GBR annually.

These pollutants contribute to algal blooms, smothering of seagrass and overall make the GBR less resilient to other pressures such as climate change.

Management of high priority and emerging issues

In 2003, the Queensland and Australian governments implemented the Reef Water Quality Protection Plan (Reef Plan), aimed at halting and reversing the decline in reef water quality. It includes targets to halve runoff of harmful nutrients and pesticides by 2013.

Two major initiatives have been implemented since 2009.

- The Caring for Our Country Reef Rescue initiative, which provides financial assistance to farmers to accelerate the adoption of land management practices.
- The Queensland Government Reef Protection Package, which includes tough new regulations.

Combined, these initiatives are making significant inroads into tackling this issue. Funding for these programs will continue to 2013 and is critical to achieving the Reef Plan targets and ensuring no detrimental impact on the GBR from agriculture. Early consideration of how the momentum from these programs can be continued beyond 2013 will be important to achieving further improvements longer term.

Illegal fishing and poaching, and some remaining impacts from fishing

Fisheries Queensland, within the Department of Employment, Economic Development and Innovation (DEEDI), works collaboratively with GBRMPA and the Australian Government Department of Sustainability, Environment, Water, Population and Communities (DDSEWPaC), and with commercial and recreational fishers, to continuously improve fishing gear and methods.

All export fisheries operating in the GBR are assessed under the EPBC Act against the Australian Government's Guidelines for the Ecologically Sustainable Management of Fisheries. The assessments against the guidelines have brought about important improvements in fisheries management. The assessments are designed around the principles of adaptive management. The conditions and recommendations are developed in close cooperation with the fishery managers to drive continuous improvement and ensure that fisheries continue to be managed in an ecologically sustainable way.

While fisheries management continues to improve, a small number of risks remain, which are being progressively addressed. The high level risks identified include extraction of top order predators, for example sharks, incidental catch of protected species and other species of conservation concern, illegal fishing (foreign and domestic) and death of discarded (by-catch) species. The limited information that is available also means that the ecosystem level impacts of fishing are not well understood.

Serious illegal activity continues to be a concern, undermining strategies aimed at building the resilience of the GBR. The types of illegal fishing incidents detected on the GBR include fishing in zones closed to fishing and use of fishing equipment or methods in zones where they are not permitted.

Recreational fishing in no-fishing zones continues to be the most frequent offence type, particularly in areas near to large population centres, and has been increasing since the rezoning of the marine parks in 2004. This in large part reflects the very high, and growing, number of people who fish recreationally in the marine parks.

Incidents of illegal take of threatened dugongs and turtles by Indigenous persons who do not have local native title rights and/or have been using illegal fishing nets remain a key issue drawing ongoing media attention and community criticism. As well as undertaking increased patrolling in identified high risk areas, the field management program provides training and other assistance to communities and Indigenous rangers to sustainably manage traditional fishing and hunting.

The cumulative effects of a range of illegal activities can significantly undermine the management of the GBR and reduce the resilience of the ecosystem, particularly in areas of highest activity or where impacts are on already vulnerable species.

Management of high priority and emerging issues

Major fisheries reviews in the past two decades have achieved a reduction in impacts in all fisheries.For example, a major review of the east coast inshore fin fish fishery in 2009 introduced significant changes including a TAC for shark and grey mackerel as well as total protection for a number of shark species.

An ecological risk assessment of the East Coast Otter Trawl Fishery (ECOTF) in the GBR was undertaken in 2010-11 by GBRMPA, Fisheries Queensland, and the Queensland Seafood Industry Association with support from the Australian Institute of Marine Science, CSIRO, and trawl industry members. The project reviewed the available ecological information on the fishery and evaluated the current risk to species, habitats and the broader ecosystem from trawling activities in the GBRWHA.

The key findings from the ecological risk assessment were that:

- under current practices and effort levels overall ecological risks from trawling in the GBR are relatively low, with most species, habitat types, species assemblages and ecosystem processes at low risk from the fishery;
- the overall environmental footprint of the ECOTF was lower in 2009 compared to 2005 as a result of a substantial reduction in trawl fishing effort over this period and fewer active boats in response to less favourable economic circumstances;
- the protection afforded to the GBR through zoning significantly contributed to the relatively low ecological risks from the fishery; and
- some remaining ecological risks posed by the fishery were identified; in particular, high risks were identified for skates and rays, sea snakes, a deepwater area known as ‘Habitat 10’ in the southern GBR and three species of crustaceans (Balmain bugs).

Outcomes from the ecological risk assessment are contributing to management processes for the fishery, including a review of management arrangements for the trawl fishery by Fisheries Queensland, as well as helping to inform the development of the GBR Biodiversity Strategy.

The Queensland and Australian governments are working with the industry and the fishing community more broadly, and research institutions to:

- address the remaining key risks and move towards best practice fisheries management; and
- identify adaptation measures that will help to future-proof their activities against the impacts of a changing climate.

Continuing fisheries reform is anticipated to take account of sustainability issues and further protect non-target species.

Chapter 3

Notification of proposed developments in conformity with paragraph 172 of the *Operational Guidelines for the Implementation of the World Heritage Convention*

Assessment of proposed developments under Australia's environmental legislation

The Australian Government's primary environmental legislation, the EPBC Act, requires that proposals that are likely to have a significant impact on matters of national environmental significance, including world heritage values, undergo a rigorous assessment and approval process. Potential impacts on world heritage values are assessed regardless of whether the proposed action is within or outside of the boundary of a world heritage property. There are significant penalties, including fines and imprisonment, for taking an action that might impact on a matter that is protected under the Act without approval.

The length of time it takes to assess a proposed development varies depending on the complexity and magnitude of the proposal, the availability of required data, and the assessment approach decided by the Australian Government Environment Minister. Due to the level of detailed consideration involved, assessment under the EPBC Act often takes up to 12 months or more. An overview of the process, including the different forms of assessment that may be applied to a proposed action, is illustrated in the EPBC Act environment assessment process flowchart at **Appendix 3**.

Actions can be assessed using one of the following assessment methods:

- Accredited assessment.
- Assessment on referral information (assessment done solely on the information provided in the referral form).
- Assessment on preliminary documentation (referral form and any other relevant material identified by the minister as being necessary to adequately assess a proposed action).
- Assessment by environmental impact statement (EIS) or public environment report (PER).
- Assessment by public inquiry.

The EPBC Act sets out the process and timing requirements for each type of assessment, as summarised in the EPBC Act environment assessment process flowchart.

Once an assessment is complete, the minister may decide to approve the proposed action, refuse the proposed action or approve the proposed action with conditions designed to mitigate any impacts. Proposals will not receive approval unless the impacts on a world heritage property are acceptable, and are consistent with the long-term protection of the property. Conditions can be set to minimise the level of impact.

When deciding if a proposed action should be approved, and if approved what conditions to impose, the minister will consider the impacts of the proposed action on matters protected by the EPBC Act and other economic and social matters. The minister takes into account the following.

- The principles of ecologically sustainable development.
- The results of the assessment of the impacts of the proposed action, including the recommendations of the secretary of the federal environment department.
- Referral documentation.
- Community and stakeholder comments.
- Any other relevant information available on the impacts of the proposed action.
- Relevant comments from other Australian Government and state and territory government ministers.
- Social and economic matters.

The minister may also take into account the environmental history of the individual or company proposing to take the action, including the environmental history of the executive officers of companies, and parent companies and their executive officers.

Conditions imposed when the minister approves an action are strictly monitored and enforced. Conditions can include the requirement for substantial contributions to be made to maintain world heritage values in the area of the proposed activity.

The following text and tables summarise the information that was sent to the World Heritage Centre in October 2011.

Summary of proposed developments within the Great Barrier Reef World Heritage Area currently being assessed for potential impacts on the area's world heritage values

LNG Processing facilities and associated infrastructure

In 2009, Shell CSG (Australia) Pty Ltd referred a proposal to the Australian Government for the development of a liquefied natural gas facility and ancillary infrastructure on the southern end of Curtis Island, opposite Gladstone on the Queensland coast. The proposed facility would be adjacent to the LNG facilities currently being established by Santos-Petronas-Total-Kogas, QGC and Australia Pacific LNG Pty Ltd. The facility is expected to produce up to 16 million tonnes per annum of LNG, using gas resources supplied from coal seam gas developments in southeast and central Queensland. There is also a proposal to construct a high pressure gas pipeline to transport coal seam gas from the mainland to the facility on Curtis Island, crossing at Port Curtis. Both these proposals are being assessed by environmental impact statement. The responsibility for these proposals has been transferred from Shell CSG (Australia) Pty Ltd to Arrow LNG Pty Ltd.

Santos Ltd has proposed to construct a bridge and road to connect the proposed liquefied natural gas facility on Curtis Island with the existing landing road, near Gladstone.

Table 3: Proposals for LNG processing facilities and infrastructure within the Great Barrier Reef World Heritage Area

Project	Link to further information
Arrow LNG	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2009per cent2F5007
Santos Ltd, construction of bridge and road to access proposed natural gas liquefaction park	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=4060
Arrow LNG	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2009per cent2F5008

Port facilities and dredging

The Australian Government is assessing proposals for the expansion of existing port facilities, including construction of infrastructure and associated dredging in the GBRWHA at Townsville Port and Abbot Point Port (approximately 25 kilometres north of Bowen on the central Queensland coast).

Construction of new port facilities has been proposed at Port Alma, approximately 40 kilometres north of Gladstone in Central Queensland, and at Balaclava Island, approximately 5 kilometres from Port Alma. New barge-loading facilities at Princess Charlotte Bay are also included as a component of a proposed underground coal mining development at Bathurst Head on Cape York Peninsular.

Table 4: Proposals for port facilities and dredging within the Great Barrier Reef World Heritage Area

Project	Links to further information
Port of Townsville Limited, port expansion project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?limit=999999&name=current_referrals&text_search=2011%2F5979
Abbot Point (North Queensland Bulk Ports) including: T2 (BHP) T3 (Hancock Coal)	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?limit=999999&name=current_referrals&text_search=2009%2F4837 EIS available online: http://www.nqbp.com.au/index.cfm?contentID=44
Gladstone (Gladstone Ports Corporation): Curtis Island (BG International and QGC Limited) Balaclava Island coal export terminal (Xstrata Coal) Fitzroy Terminal Project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=4406 EIS available online: http://www.qgc.com.au/01_cms/details.asp?ID=427 www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?limit=999999&name=current_referrals&text_search=2009%2F5158 www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2011%2F6069
Hancock Coal, coal terminal expansion, and associated infrastructure	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2008%2F4468
Aust-Pac Capital, Wongai underground coal mine project, Queensland	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=6092

Tourism developments

Tourism developments have been proposed on Great Keppel, Wild Duck and Hook islands. A marina development has been proposed for Shute Harbour, approximately 10 kilometres east of Airlie Beach. The proposed developments will be assessed by environmental impact statement. A previous proposal for a tourist development on Great Keppel Island was rejected by the minister in October 2009.

Table 5: Proposals for tourism developments within the Great Barrier Reef World Heritage Area

Project	Links to further information
GKI Resort Pty Ltd, tourism & marina development	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2010%2F5521
Ecotourism resort on Wild Duck Island	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2008%2F3971
Laguna Pty Ltd resort expansion	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=3580
Shute Harbour Marina Development Pty Ltd, construction of marina facility	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=2939

Aquaculture development

The Australian Government has received a referral for an Indigenous-owned and operated aquaculture farm on the Palm Island Group, 65 kilometres north-east of Townsville, North Queensland. The proposal will be assessed by public environment report.

Table 6: Proposal for aquaculture development within the Great Barrier Reef World Heritage Area

Project	Links to further information
Coolgaree Aboriginal Corporation for CDEP, Palm Island sponge aquaculture project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=3613

Summary of proposed developments *outside* the Great Barrier Reef World Heritage Area currently being assessed for potential impacts on the area's world heritage values

Mining and extractive industries

Proposed mines in central Queensland (three new mines and expansion of one existing mine) and a proposed mine in the Cape York region have been referred and will be assessed for their potential impacts on the world heritage values of the Great Barrier Reef. Although the central Queensland projects are all located more than 100 kilometres from the World Heritage Area, they are subject to assessment because they are within catchments that flow into the property. There is also a proposal for sand extraction around 2km from the boundary of the property to supply sand to the local region for construction purposes.

Table 7: Proposals for mining and extractive industries outside the Great Barrier Reef World Heritage Area

Project	Links to further information
Bedrock Landscape Supplies, sand extraction	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=6072
Xstrata Coal Queensland Pty Ltd, Rolleston coal expansion project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=5965
Aust-Pac Capital, Wongai underground coal mine project, Queensland	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=6092 (This proposed action was also included in Table 3 for the port facilities component of this project)
Adani Mining Pty Ltd, Carmichael coal and rail project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=5736
Waratah Coal, Incorporated establishment of Galilee coal mine and associated infrastructure	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2009per cent2F4737 Draft EIS is available here: http://www.waratahcoal.com/
Hancock Prospecting Pty Ltd, mine and rail development	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2008per cent2F4648

Processing facilities and infrastructure

Two processing facilities outside the boundary of the World Heritage Area are currently being assessed for potential impacts on the world heritage values of the GBRWHA: an alumina refinery at Abbot Point, in the region of Bowen in central Queensland; and a chemical processing plant at Gladstone, a site with significant existing industrial infrastructure.

However, the Aurukun Bauxite Project is understood to no longer be going ahead following discussions between the Queensland Government and Chalco, where both parties allowed the development agreement to end on 30 June 2010 (see http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=75510).

Table 8: Proposals for processing facilities and infrastructure outside the Great Barrier Reef World Heritage Area

Project	Links to further information
LG Chem Ltd, Construction of a Chlor-Alkali/Ethylene Di-Chloride (CA/EDC) plant, Gladstone state development area	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=922
Chalco Australia Pty Ltd, Aurukun Bauxite Project Abbot Point Refinery (Note: understood to be not proceeding).	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=922 http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=75510

Transport infrastructure (excluding port facilities)

A transport corridor is proposed to link the alumina refinery and associated facilities proposed to be located near Abbot Point (listed above) with port facilities at Abbott Point. The refinery and port facilities are being assessed separately.

Table 9: Proposal for transport infrastructure outside the Great Barrier Reef World Heritage Area

Project	Links to further information
Chalco Australia Pty Ltd, Aurukun bauxite project Abbot Point transport corridor	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=4593

Pipelines

A gas pipeline is proposed from the Bowen Basin area of central Queensland to Gladstone on the central Queensland coast.

Table 10: Proposal for the construction of a gas pipeline outside the Great Barrier Reef World Heritage Area

Project	Links to further information
Bow Blackwater CSG Pty Ltd, Blackwater to Gladstone gas pipeline project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=6034

Water treatment facilities and water supply infrastructure

Three water treatment facilities and stormwater management infrastructure are proposed to improve the water quality and minimise the amount of waste water that is discharged into the catchments of the GBRWHA. Five projects involving the construction of dams, weirs, water transport pipelines and other water infrastructure are proposed to meet the anticipated water supply requirements of regional Queensland.

Table 11: Proposal for the construction of water treatment facilities and water supply infrastructure outside the Great Barrier Reef World Heritage Area

Project	Links to further information
Mackay City Council, water recycling facility	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2011%2F6005
Adani, Abbot Point stormwater return dam	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?limit=999999&name=current_referrals&text_search=2010%2F5561
Cassowary Coast Regional Council, sewerage treatment plant and outfall	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2010%2F5448
Whitsunday Regional Council, Proserpine waste water treatment facility upgrade	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=5711
Gladstone Area Water Board & SunWater Limited, the lower Fitzroy River infrastructure project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?limit=999999&name=current_referrals&text_search=2009%2F5173
SunWater, Connors river dam and pipelines	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2008%2F4429
SunWater, construction and operation of Nathan Dam	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2008%2F4313
SunWater, Water for Bowen project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2006%2F2527
Cairns Regional Council, groundwater extracted from Mulgrave River Aquifer, bore field and associated infrastructure	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=2390

Tourism Developments

Four proposed tourism developments near the boundary of the world heritage property are currently being assessed for potential impacts on the world heritage values of the GBRWHA.

Table 12: Proposals for tourism developments outside the Great Barrier Reef World Heritage Area

Project	Links to further information
Tropical Resort Developments Pty Ltd, Cairns Queensland	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=5211
Taylor Family Trust, Taylor Family Health Retreat	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2009%2F4785
Starline Australia Holdings, Reef Cove Resort - final stage	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2007%2F3482
Satori Resorts Ella Bay Pty Ltd, Ella Bay residential and tourism development	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2005%2F2159

Agricultural developments

A proposal to convert existing grazing and cropping land to cassava production and processing is being assessed due to its location adjacent to the Burdekin River, which flows into the GBRWHA.

Table 13: Proposal for an agricultural development outside the Great Barrier Reef World Heritage Area

Project	Links to further information
CassTech, The Burdekin Cassava Project	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals&limit=999999&text_search=2010%2F5514

Residential developments

Two proposed residential developments, both located around 120 kilometres south of Cairns, are being assessed on preliminary documentation.

Table 14: Proposals for residential developments outside the Great Barrier Reef World Heritage Area

Project	Links to further information
MM Land Pty Ltd, Pacific View Drive, Wongaling Beach	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=5228
Nemourna Eco-Efficient Development, Garners Beach Queensland	www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=4616

Appendix 1

Plans for the management of the GBR world heritage area

(and the associated legislation)

Area	Detailed area	Jurisdiction	Planning tools	Basis for the plan
GBRWHA	Entire GBRWHA (incl. all other areas listed below)	Commonwealth	25 Year Strategic Plan	Advisory only, but developed in 1991-94 and endorsed by some 60 stakeholders when released.
Waters	Great Barrier Reef Marine Park (waters below LWM) *= 99.3 per cent of GBRWHA*	Commonwealth	GBRMP Zoning Plans Plans of Management (in specific key areas only)	Statutory *(as specified in s. 32 & 33 of GBRMP Act 1975)* Statutory *(as specified in s. 39V-39ZI of GBRMP Act 1975)*
	Intertidal waters (HWM to LWM)	State	State Marine Park Zoning Plan; and/or; State Coastal Management Plan; and/or Regional Coastal Management Plans (where applicable)	Statutory *(as specified in Qld Marine Parks Act)* Statutory *(as specified in the Coastal Protection & Management Act)* Statutory *(as specified in the Coastal Protection & Management Act)*
	Internal waters of Qld	State	State Marine Park Zoning Plan; and/or State Coastal Management Plan; and/or Regional Coastal Management Plans (where applicable)	Statutory *(as specified in Qld Marine Parks Act)* Statutory *(as specified in the Coastal Protection & Management Act)* Statutory *(as specified in the Coastal Protection & Management Act)*
	Waters as defined in the plans	State & Commonwealth	Queensland Fisheries Management Plans *(eg East Coast Trawl Management Plan)*	Statutory *(as specified in the Qld Fisheries Act)*

Area	Detailed area	Jurisdiction	Planning tools	Basis for the plan
Islands	Commonwealth Islands	Commonwealth	Included in GBRMP so covered by all GBRMP zoning provisions and regulations	Statutory *(as specified in s. 32 & 33 of GBRMP Act 1975)*
	National Park Islands (Qld)	State	Management plans	Statutory *(as specified in Qld Nature Conservation Act 1992)*
	Freehold land/ other tenures on islands	State	Local Gov Planning Schemes; and/ or Local Govt Development Control Plans; and/or Regional Plans/Planning Strategies and/ or; State Coastal Management Plan; and/or Regional Coastal Management Plans (where applicable)	Statutory under I*ntegrated Planning Act* (ESD is main object) Statutory *(as specified in the Coastal Protection & Management Act)* Statutory *(as specified in the Coastal Protection & Management Act*
Exclusion areas (eg ports not within GBRMP)	State waters	State	State Coastal Management Plan; and/or Regional Coastal Management Plans (where applicable) Port Land Use Plans	Statutory *(as specified in the Coastal Protection & Management Act)* Statutory *(as specified in the Coastal Protection & Management Act.)* Statutory *(under the Transport Infrastructure Act 1994).*

Appendix 2

Example of format for detailed documentation of key management issues

(Documentation of all key management issues to be provided to monitoring mission for reference)

Shipping

Background

- Over the past 10 years there has been a gradual increase in the number of ship voyages undertaken through the Great Barrier Reef Marine Park. In 2010, more than 5000 ships transited through the Marine Park and arrived at Queensland Ports.
- Shipping cargo includes coal, sugar, iron ore, timber, oil, chemicals, live cattle and general cargo. The amount of shipping in the Marine Park is a direct reflection of the global economy and development occurring overseas and the need for products to supply economic activity.
- Over the next five years it is anticipated that there will be a 20 per cent increase in shipping traffic within the Marine Park, primarily driven by bulk commodity exports, focused around existing and future expansions in the Queensland resources ports.
- Some of the factors that can increase the probability of a shipping incident are unique to the Marine Park are.
  - The GBR is very large, stretching over 2300km along the Queensland coast, with many complex and unchartered features and limited navigational facilities.
  - The Reef is subject to strong trade winds, occasional cyclones and complex tidal streams.
  - Ships encounter limited water depths, reduced visibility occurs during most storm weather conditions and narrow restricted shipping lanes in certain parts of the Marine Park.
- The Australian Maritime Safety Authority (AMSA), the Great Barrier Reef Marine Park Authority (GBRMPA) and Maritime Safety Queensland (MSQ) work closely together to protect the marine environment from adverse consequences of shipping operations and providing for the safety of ships' crews, passengers and other users of the Great Barrier Reef.
- The GBR Marine Park is one of the world's most regulated shipping areas. Existing comprehensive management arrangements for shipping mean that there have been few incidents threatening the values of the GBR relative to the large number of shipping movements in and through the Marine Park.

Key current issues

- The two most significant shipping activity risks that threaten the Marine Park are major oil or chemical spill and the introduction of invasive marine species. Both have the potential to cause extensive, long-term damage to the environment, economic activity and socio-cultural activities in the region.
- As a consequence of the dynamic nature of shipping, constant changes to the levels and type of traffic at many ports has also lead to a greater range of new noxious and hazardous substances (such as liquid natural gas) that will be transported in bulk and in packaged form through the Marine Park. There are many unknown effects and impacts of these new substances and training and preparation for a chemical spill has to date been limited.
- The number of port expansions ongoing and predicted along the Queensland coast in the next five years means consequential increases in shipping levels. Some ports, such as Abbot Point are predicting an increase in shipping from 173 in 2008 to a projection of between 1120 and 3425 per annum for the proposed 12 berth multi-cargo facility.

Table 1 – Overview of adaptive management of shipping in the GBRWHA

Date	Actions taken *(+ lead agency)*	Situation	Comments
1981	The Great Barrier Reef is inscribed on the World Heritage List *(Aust Govt)*		The Great Barrier Reef was inscribed on the World Heritage list under the 1972 Convention Concerning the Protection of World Cultural and National Heritage. It is the world's largest World Heritage area.
1990	Great Barrier Reef Marine Park is declared one of the world's first Particularly Sensitive Sea Areas (PSSA) *(International Maritime Organization)*	• Compliance with Australian system of pilotage • Mandatory ship reporting (GBR) • Two way route (Torres Strait)	A PSSA is an area of the marine environment that needs special protection through action by the IMO because of its significance for recognised ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities. This international recognition allowed for the implementation of special protective measures to control shipping operations which included compliance with the Australian system of pilotage, mandatory ship reporting and two way routes.
1991	Compulsory pilotage regime introduced in the inner route from Cape York to Cairns	• Recommended pilotage regime also introduced for the Torres Strait and Great North East Channel endorsed by IMO	The establishment of a compulsory pilotage regime for ships transiting navigationally complex areas of the Reef with the pilot providing detailed local knowledge to assist safe passage.

Date	Actions taken *(+ lead agency)*	Situation	Comments
1997	The mandatory ship reporting system for the GBR is introduced through REEFREP *(AMSA & Queensland Dept. Transport)*	• Ships are required to report their position on a regular basis	Under these arrangements, all ships over 50 metres in length; all oil tankers, liquefied gas carriers and chemical tankers; and ships engaged in towing with a tow over a certain size are required to participate in these systems. The ship reporting system (REEFREP) provides a monitoring capability ashore which interacts with shipping allowing the provision of improved information on the presence, movements and pattern of shipping in the area.
2004	Great Barrier Reef Marine park Zoning Plan comes into effect with new rules that apply to shipping *(GBRMPA)*	• Designated Shipping Area	Ships may only navigate within the Designated Shipping Area (DSA) and the General Use Zone. The DSA has been placed to minimise the impact on the shipping industry whilst having regard for Australia's international obligations.
2004	Coastal vessel traffic service (REEFVTS) introduced *(AMSA & MSQ)*	• REEFVTS is comprised of two major components: – REEFREP: mandatory ship reporting; – Monitoring and surveillance systems including radar, Automatic Identification System (AIS), satellite reporting and VHF reporting	The coastal vessel traffic service allowed near real time monitoring of ship traffic to provide information to a ship's master on potential traffic conflicts and other navigational information. The area did not extend further south than 22 degrees (south of Mackay) given the relatively easier navigation in the open waters. Since the introduction of the VTS there has been a reduction of groundings from 1 per year (between 1997-2003) to 0.16 per year (between 2004-2009). The provision of navigational assistance to vessels approaching shallow waters has successfully averted at least six groundings. In 2008-2009 VTS monitored over 8000 ship movements per year.
2004	Two way route established around Princess Charlotte Bay *(AMSA & Australian Hydrographic Office)*	• The establishment of two way routing and 9 new aids to navigation and revised nautical charts	• The two-way routes, or in some cases recommended tracks provide guidance for mariners as to the safest track for ships to follow. These improvements lead to a reduction in navigational risk and a reduced voyage of some 20 nautical miles.

Date	Actions taken *(+ lead agency)*	Situation	Comments
2005	The Torres Strait becomes a PSSA *(IMO)*		The inclusion of the Torres Strait in the Great Barrier Reef PSSA ensures there was international recognition that this area was an area of the marine environment that needs special protection through action by the IMO because of its significance for recognised ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities. The establishment of associated protective measures can be applied to minimise the risk to the area of PSSA that may be caused by international shipping.
2006	National Maritime Emergency Response Arrangements (NMERA) *(AMSA)*	Emergency Towage Vessels (ETVs)	The aim of NMERA is to protect the marine environment from actual or potential ship-sourced pollution through the continuing provision of an appropriate level of maritime emergency towage capability around the Australian coastline. The ETV *Pacific Responder* operates 24/7 under AMSAs direction to provide emergency towage and first response capability in the particularly sensitive sea area in the Torres Strait and Great Barrier Reef area north of Cairns.
2008	Automatic Identification System (AIS) to be carried on board vessels		AIS provides automatic information exchange between vessels as well as being monitored by shore side AIS receivers which greatly assists to provide real-time data on vessel movement. The system greatly enhances AMSA's vessel tracking abilities.
2011	Extension of REEFVTS to southern boundary of GBR PSSA *(AMSA & MSQ)*	Further mandatory ship reporting towards the southern boundary of the PSSA.	In July 2011 and as a direct result of the *Shen Neng 1* grounding and actual increases in ship traffic around the Gladstone region, AMSA has extended the mandatory ship reporting system into the southern portion of the Marine park.
2011	Under keel clearance management system *(AMSA)*	Assists in safe passage through Torres Strait	The implementation of an under keel clearance management system for the restricted waters of Torres Strait. This system identifies safe times and speeds for transit through Torres Strait to ensure a sufficient amount of water remains under the ship's keel at all times; thus avoiding groundings.

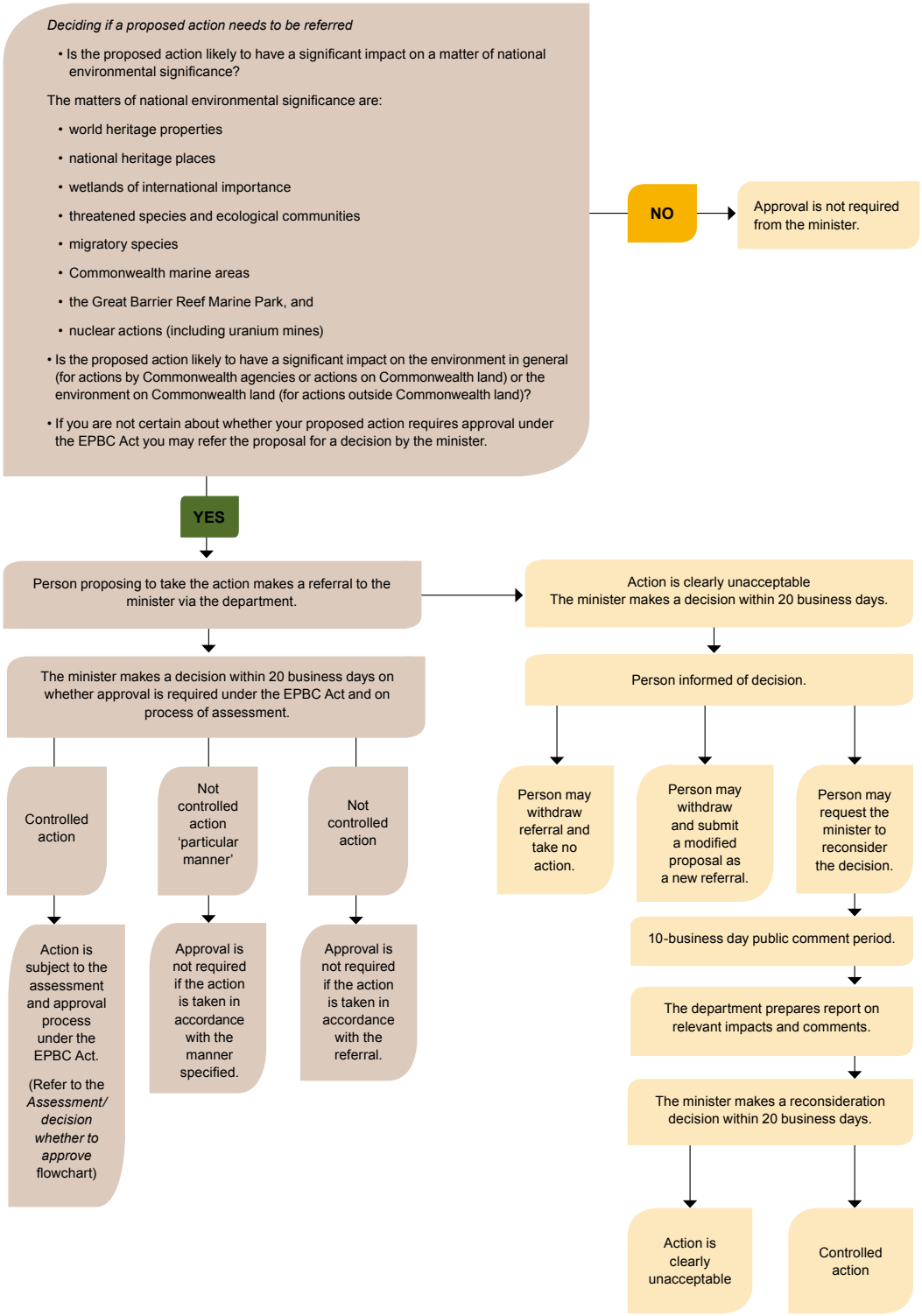
Date	Actions taken *(+ lead agency)*	Situation	Comments
2011	Assessment of the Risk of Pollution from Marine Oil Spills in Australian Ports and Waters *(AMSA)*	Probabilities of oil spills at sea impacting on the coastline are estimated from simple transport and fate models. The overall spill risk is determined using a spreadsheet calculation, and displayed using GIS.	Estimates the risk of pollution from marine oil spills in Australian ports and waters, in order to support a review of the *National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances* (the National Plan) and *National Maritime Emergency Response Arrangements* (NMERA).
2011	Shipping Management Group *(AMSA, MSQ, GBRMPA)*		This group meets regularly to discuss current measures to enhance maritime safety and protection of the Great Barrier Reef. The group also assesses the risk posed by future traffic growth and recommends mitigation measures to deal with those risks.
2011	*Maritime Legislation Amendment Act 2011*	Received Royal Assent on 4 December 2011.	Amends the *Navigation Act 1912* to include a new offence for operating a vessel in a manner that causes pollution or damage and increased penalties for failure to report an incident by a ship in the GBR Marine Park. Also amends the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* to increase penalties for the discharge of oil or oil residues by ships in Australian waters to $11 million for an aggravated offence.

Key references

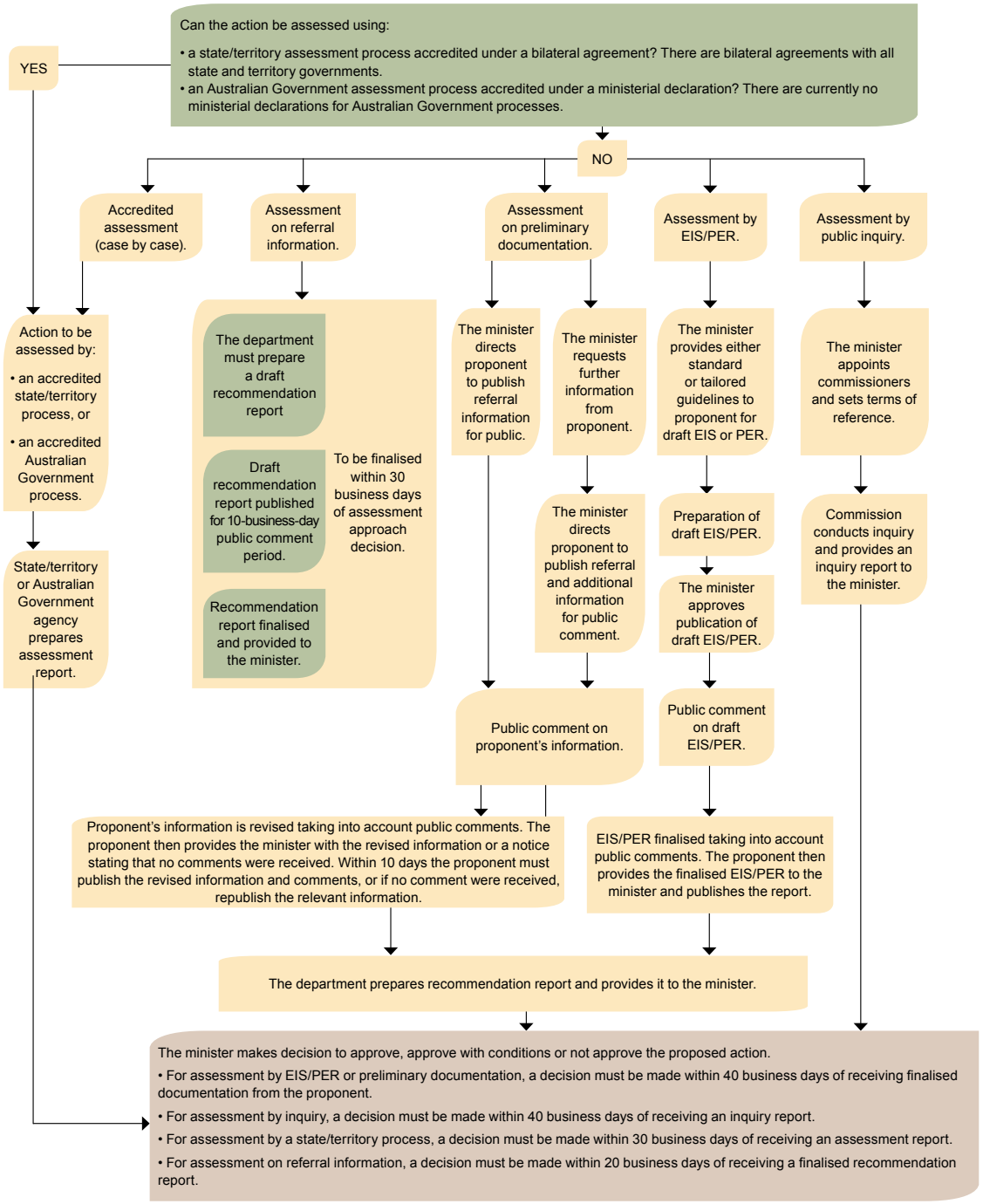
- Australian Maritime Safety Authority (2008). *Particularly Sensitive Sea Areas: Fact Sheet.*
- Australian Maritime Safety Authority (2010). *Improving Safe Navigation in the Great Barrier Reef.* http://www.amsa.gov.au/shipping_safety/Great_Barrier_Reef_and_Torres_Strait/documents/AMSA%20report%20of%20safe%20navigation%20in%20the%20GBR.pdf
- Australian Maritime Safety Authority (2011). *Strengthening the protection of the Great Barrier Reef.*
- Det Norske Veritas (2011). *Assessment of the Risk of Pollution from Marine Oil Spills in Australian Ports and Waters.* Final Report to Australian Maritime Safety Authority; Report No PP002916, Rev 4, 21 October 2011 http://www.amsa.gov.au/Marine_Environment_Protection/National_plan/Reports-Fact_Sheets-Brochures/DNVReport.asp
- Great Barrier Reef Shipping Review Steering Committee (2001). *Review of Ship Safety and Pollution Prevention measures in the Great Barrier Reef.*
- Great Barrier Reef Marine Park Authority (2011). DRAFT: *Emerging Risk from Shipping in the Great Barrier Reef Marine Park.*

Appendix 3

EPBC Act environment assessment process—referral



EPBC Act environment assessment process—assessment/decision whether to approve



Appendix 4

Annex II to the letter from the UNESCO World Heritage Centre dated 20 July 2011

Format for preparing a State Party's Report on the State of conservation of its World Heritage property inscribed on the World Heritage List

Name of World Heritage property (State Party) (Identification number)

1. **Response from the State Party to the World Heritage Committee's Decision, paragraph by paragraph**

   [Note: this information has to refer to developments over the past year or since the last decision of the Committee for this property]

2. **Other current conservation issues identified by the State Party**

   [Note: conservation issues which are not mentioned in the Decision of the World Heritage Committee or any information request from the World Heritage Centre]

3. **In conformity with paragraph 172 of the *Operational Guidelines*, please describe any potential major restorations, alterations and/or new construction(s) within the protected area and its buffer zone and/or corridors that might be envisaged.**