

**Ningaloo Marine Park/ Muiron Islands Marine Management
Area Management Plan
Periodic Audit Report**

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TABLE OF CONTENTS

TABLE OF CONTENTS	3
ACKNOWLEDGMENT	4
SUMMARY.....	4
RECOMMENDATIONS	5
1. INTRODUCTION	6
Management Plan history.....	6
Legislative context and MPRA role.....	6
DEC Performance Assessment Framework.....	6
2. OBJECTIVES.....	7
3. PERIODIC AUDIT PROCESS – NINGALOO MARINE PARK.....	7
4. ACHIEVEMENTS	8
Increased data available for adaptive management.....	9
Ningaloo Research Program & Ningaloo Collaboration Cluster.....	9
Condition of Key Performance Indicators (KPIs)	10
DEC/DoF Collaboration	12
Education and Community stewardship.....	12
5. SUMMARY OF KEY MANAGEMENT ISSUES	13
2015 Coastal Exclusion Process.....	13
Increasing human pressure.....	13
WAMSI Node 3 recommendations.....	16
Mooring, Anchoring and Boat Ramps.....	16
6. RESPONSE TO PERIODIC AUDIT QUESTIONS.....	17
APPENDIX 1: LIST OF STAKEHOLDERS.....	22
APPENDIX 2: QUESTIONS FOR PERIODIC AUDIT	24
APPENDIX 3: 2011/12 SUMMARY OF REPORT CARDS.....	25
APPENDIX 4: OTHER ISSUES RAISED BY STAKEHOLDERS	27
REFERENCES.....	28

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The Marine Parks and Reserves Authority would like to thank the Department of Environment and Conservation (Exmouth District and Marine Policy and Planning Branch) and the Department of Fisheries for all the assistance provided in this periodic audit process.

The MPRA would also like to acknowledge the many stakeholders (listed in Appendix 1) who contributed to the periodic audit and gave their time to provide information and feedback, attend workshops, conference calls and/or meet with the MPRA in person.

SUMMARY

This report presents the findings of the Marine Parks and Reserves Authority (MPRA) periodic (5 year) audit of the implementation of the management plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005-2015. The audit was undertaken in accordance with the MPRA Audit Policy (2008) and Audit Guidance Statement (2012) and consistent with the MPRA functions under the *Conservation and Land Management Act 1984* (CALM Act).

The audit specifically aimed to:

- Address the 'periodic audit questions' in the MPRA Audit process (Appendix 2)
- Review all key ecological and social values (KPI's) identified in the management plan;
- Consider progress in achieving strategic objectives in the management plan
- Identify management plan implementation issues

The audit highlighted that the management system is operating effectively and that the Department of Environment and Conservation (DEC) are progressively meeting management objectives through the implementation of strategies in the *Ningaloo Marine Park and Muiron Islands Marine Management Area Management Plan 2005-2015*.

Key findings included:

- A large proportion of management strategies have been implemented (either completed or partially completed) since the management plan's inception in 2005.
- The condition of all key ecological and social values (Key performance indicators) are reported in good to satisfactory condition and the amount of quantitative data available to make these assessments has improved greatly with the work of DEC Marine Science Program and the WA Marine Science Institution (WAMSI). No KPIs or any key values were assessed as unsatisfactory or poor condition.
- There is strong community support and stewardship for the marine park, and the relationship between DEC and the majority of key stakeholders has been demonstrated as good with positive outcomes for the marine park.
- A number of key management issues need to be addressed in the near future in order for DEC to continue to manage the marine park in an efficient and effective manner, including access to the southern coastal strip and quantifying wilderness and seascape KPI values.

The MPRA have made a number of recommendations below and suggest the following priorities for the remaining life of the management plan are:

- Priority is given to any High-Key Management Strategies (H-KMS) which have not yet been implemented to date (See section 6).
- DEC to investigate the means for the transfer of science knowledge (particularly from WAMSI) to management decision making.
- DEC to determine methods for measuring wilderness and seascape values and undertakes a quantitative assessment of the condition of these values (KPIs) for the marine park.

RECOMMENDATIONS

The Marine Parks and Reserves Authority provide the following recommendations:

	RECOMMENDATION
1	<i>The MPRA recommends that the 2015 Coastal Exclusion Process negotiations are finalised as soon as practicable to ensure that access issues are resolved and DEC management of the marine park in those areas can be carried out effectively to meet the management plan objectives.</i>
2	<i>The MPRA recommend that DEC liaise with the Local Government Authorities to monitor and manage the expected increase in visitation to Ningaloo Marine Park, and ensure collaboration in respect to planning, promotion and sustainable tourism.</i>
3	<i>The MPRA recommend that a) methods for quantifying wilderness and seascape values be developed in conjunction with DEC Marine Science Program and b) priority should be given to the quantitative assessment of the wilderness and seascape KPI values of the Ningaloo Marine Park.</i>
4	<i>The MPRA recommend that the findings and recommendations from the WAMSI Node 3 report should be given due consideration by management agencies and in future review of the management plan.</i>
5	<i>The MPRA recommend that DEC consider the requirement for moorings for large recreational vessels and review the mooring and anchoring plan if required</i>
6	<i>The MPRA recommend that DEC and DoT resolves the tenure issues surrounding the Coral Bay Maritime Facility to ensure that it is managed effectively.</i>
7	<i>The MPRA recommend that priority be given to commencing the four outstanding H-KMS strategies over the next five years of the management plan.</i>
8	<i>The MPRA recommend that the development of the rehabilitation plan (strategy 3.2.6) and designation of camping areas (strategy 7.1.10.3) become high key management strategies once the 2015 pastoral exclusion process is finalised.</i>
9	<i>While DEC have commenced the development of a Recreation and Tourism Master Plan (Strategy 7.2.5.4), the MPRA acknowledge this is a H-KMS and recommended that the completion of the plan is given high priority.</i>

1. INTRODUCTION

Management Plan history

The Ningaloo Marine Park was originally gazetted in 1987 and on 30 November 2004 the marine park boundary was amended to include the whole of the Ningaloo Reef in the marine park. The Muiron Islands Marine Management Area was also gazetted on the 30 November 2004. The *Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005-2015* (the management plan) was formally approved by the Minister for the Environment on 7 January 2005.

Legislative context and MPRA role

The audit function of the Marine Parks and Reserves Authority (MPRA) is specified under section 26B (f) of the *Conservation and Land Management Act 1984* (CALM Act) which states that in relation to management plans for lands and waters vested in it, that the MPRA is:

- i. to develop guidelines for monitoring the implementation of management plans by the Department;
- ii. to set performance criteria for evaluating the carrying out of management plans; and
- iii. to conduct periodic assessments of the implementation of management plans.

The MPRA has established an Audit Policy (2002) and endorsed a performance assessment framework to give effect to the audit function. The audit process was reviewed in 2012 and a set of audit and review guidelines were produced. These documents are part of an integrated system of DEC management that also includes outcome based management plans, annual marine work plans, a comprehensive marine monitoring and reporting system and annual performance assessment reports, as well as the periodic and ten-year audits.

DEC Performance Assessment Framework

The performance assessment framework encompasses several assessment components, including: **input measures** such as staff and financial resources; **activity/output assessment** against the annual 'marine work plans'; and **outcomes** in relation to the nature conservation and social benefit strategic objectives of marine reserves specified in the relevant management plan.

Input and activity/output components are dealt with through assessment against annual marine work plans that are prepared for each reserve. The annual marine work plans reflect the annual set of planned actions to progressively implement the prioritised strategies contained in the management plan. The actions that are identified as High-Key Management Strategies (H-KMS) in the management plan are particularly important for MPRA assessment as completion of these strategies should contribute greatly to implementing best-practice management systems and processes, help to alleviate identified major pressures on ecological and social values, and result in delivery of outputs that contribute to achieving the desired strategic outcomes over the life of the management plan.

The management plans also list key performance indicators (KPIs) that relate specifically to the management targets for key ecological and social values and reflect the highest conservation (from biodiversity and ecosystem integrity perspectives) and social priority desired outcomes. The condition of KPI's is summarised in this document under Section 4.

2. OBJECTIVES

The objective of the periodic audit is to conduct a mid-term (approximately 5 year) review and report on the implementation of the management plan for the *Ningaloo Marine Park and Muiron Islands Marine Management Area 2005-2015*. Specifically the aim is to:

- Address the 'periodic audit questions' in the MPRA Audit process (Appendix 1)
- Review all key ecological and social values (KPI's) identified in the management plan;
- Consider progress in achieving strategic objectives in the management plan
- Identify management plan implementation issues

This document reports on the periodic audit of the implementation of the management plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area conducted by the MPRA, and provides recommendations and priorities for the remaining period of the management plan. It is intended to meet the obligations under the CALM Act, consistent with the MPRA Audit Policy (MPRA 2008).

3. PERIODIC AUDIT PROCESS – NINGALOO MARINE PARK

The periodic audit of the management plan for Ningaloo Marine Park was undertaken by the MPRA Audit Subcommittee, under delegation from the full authority. The Audit Sub-committee members who conducted the audit were Emeritus Professor Diana Walker (Sub-committee Chair), Dr Kellie Pendoley, Jeff Cooper and Ida Holt.

The key stages of the audit included:

Scoping:

- The MPRA liaised with DEC (Marine Policy and Planning Branch, Exmouth District & Marine Science Program) as well as DoF to initially scope out the likely key issues and approach to the periodic audit.

Consultation:

- *Government Lead Agencies* - The MPRA consulted with the lead Government agency responsible for the implementation of the management plan;
- *Other State and Commonwealth government departments* – the MPRA wrote to other government departments directly mentioned in the management plan and feedback was received from Department of Mines and Petroleum, Department of

Transport, Water Corporation, Department of Regional Development and Lands, Landgate, Department of Planning, WA Museum, Environmental Protection Authority, Department of Sustainability, Environment, Water, Populations and Communities (SEWPAC) and the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

- *Stakeholders* – The MPRA contacted all key stakeholders including the oil and gas industry, indigenous groups, conservation groups, station managers/pastoralists, commercial and recreational fishing, Local Government Authorities, Commercial Operators and Chamber of Commerce. Stakeholders were invited to comment on the implementation of relevant strategies in the management plan (see full list of stakeholders at Appendix 1).
- MPRA representatives met with Recfishwest, Baiyungu Aboriginal Corporation and held teleconferences with Gnaraloo, Ningaloo and Quobba stations, and Shire of Carnarvon. A written response was also provided by Warroora Station.

Site visits:

- The MPRA audit committee travelled to Exmouth & Coral Bay over two days from the 4 – 6 November 2012. The audit committee members attended meetings with commercial operators, Department of Fisheries, Department of Transport, Exmouth Game Fishing Club, Shire of Exmouth, Cape Conservation Group, Exmouth Visitor Centre, North West Cape Aboriginal Corporation, Gascoyne Development Commission and regional DEC staff.

Reporting:

- Formal reports were submitted by DEC and DoF on the implementation of relevant strategies in the management plan.
- The audit subcommittee reviewed the reports, as well as feedback provided by all other stakeholders in writing or in person.
- An audit workshop day was held on 7 December 2012 in Perth at which DEC & DoF provided presentations on their respective submissions. The workshop was also an opportunity for the Audit subcommittee to discuss written submissions received and synthesize the key issues arising from stakeholder feedback.

4. ACHIEVEMENTS

The periodic audit, as well as the recurrent annual performance assessment of the management plan, has highlighted a number of achievements since the inception of the management plan. These include:

- An increase in the amount of quantitative data available for adaptive management, particularly through the work of DEC Marine Science Program and the WA Marine Monitoring Program (WAMMP).
- A better coordination of research and monitoring and better alignment of research with management plan objectives.

- The condition of key ecological and social values (KPIs) has been assessed as good to satisfactory. No KPIs or any key values were assessed as unsatisfactory or poor condition.
- Better collaboration between the responsible government agencies (DEC and DoF) has been demonstrated through the implementation of the Collaborative Operational Plan.
- Marine education programs are being delivered successfully and have resulted in a positive shift in community stewardship towards the marine park.
- A high percentage of strategies have been implemented (189 out of 214 strategies or 88%) since the management plan was gazetted in 2005.
- The inclusion of the Ningaloo Marine Park and Muiron Islands Marine Management Area in the Ningaloo Coast World Heritage Area, in recognition of its global significance for natural beauty and biological diversity. World Heritage listing of the Ningaloo Coast recognises the effectiveness of existing conservation and management efforts on the Ningaloo Coast.

Increased data available for adaptive management

The performance assessment reporting has been implemented since 2003 and initial reports were populated mainly with anecdotal information. Since the Marine Science Program and DEC Regions began establishing a systematic process for Monitoring, Evaluation and Reporting (MER) through the development and implementation of the Western Australian Marine Monitoring Program (WAMMP), more data has been used in assessments. Since late 2008 when the WAMMP was established, more robust quantitative data on the condition, pressure and management response (CPR) related to assets, has been used in reserve management planning, delivery and internal and third party reporting. The WAMMP program has worked hard to define the CPR indicators that are required for long term monitoring, and to obtain and deliver quantitative information relevant to the assets and strategies listed within marine park and reserve management plans. In this regard there has been considerable progress in the last 3 years, in providing evidence to facilitate and guide effective and efficient management of DEC marine conservation estate (MPRA 2012).

In 2011-2012 there were new condition, pressure and/or response data available for each of the eight KPIs for the Ningaloo Marine Park, and it is reassuring to know that current information is being used to inform management.

Ningaloo Research Program & Ningaloo Collaboration Cluster

Significant research activity has been coordinated in the Ningaloo Marine Park through the Western Australian Marine Science Institution (WAMSI). The Ningaloo Research Program (WAMSI Node 3) was undertaken between 2005-2011 and included more than \$30 million in funding towards projects addressing information needs identified in the management plan. This also included the complementary Ningaloo Collaboration Cluster, a research program funded by the CSIRO Wealth from Oceans Flagship.

The combined research program of over 150 projects has generated a fundamental (at least 10-fold) improvement in knowledge and understanding of the physical and biological processes that maintain Ningaloo Reef and of the uses, values and impacts of humans that utilise the region (WAMSI 2012).

This means there is now a far better understanding of the physical and biological features that comprise Ningaloo Marine Park.

The WAMSI Node 3 summary reports that the new knowledge gained in the research program has already had application in the day-to-day management of the Ningaloo Marine Park including:

- Improved oil spill response planning and management
- Improved efficiency of compliance programs
- Improved effectiveness of mooring and anchoring plans
- Improved management of visitor risk
- More effective licence conditions for commercial tourism operators
- Enhanced efficiency and effectiveness of ecological and social monitoring, evaluation and reporting programs
- Improved visitor infrastructure planning
- Improved scientific knowledge base to support world heritage listing
- Improved community understanding and acceptance of the difficulties in managing iconic marine areas
- More targeted education and participation programs

The challenge will be for WAMSI, CSIRO and all the program partners to ensure that the research findings and knowledge are disseminated effectively to management agencies and applied to future management decision making for the Ningaloo Marine Park. The report produced by WAMSI contains a number of recommendations, all of which are supported/welcomed by the MPRA. The implementation of these recommendations will be critical to the use and application of this information and knowledge in the future management of Ningaloo Marine Park.

WAMSI recommendations are discussed further under section 5 below.

Condition of Key Performance Indicators (KPIs)

Both DEC and DoF submitted reports to the MPRA on the implementation of strategies and the condition of Key Performance Indicators they are responsible for. These reports as well as the DEC Performance Assessment Reports, and DoF 2011/12 State the Fisheries Annual Report were used to determine the condition of KPIs.

The KPIs for the Ningaloo Marine Park and Muiron Islands Marine Management Area are:

- Water quality
- Coral reef
- Mangrove
- Coastal biological communities
- Finfish
- Turtles
- Seascapes
- Wilderness

Advice from DEC

The status and condition of Key Performance Indicators (KPIs) for Ningaloo Marine Park was provided in the DEC Annual Performance Assessment Report 2011/12 submitted to the MPRA in October 2012. A summary of the report card for 2011/12 is at Appendix 3.

The condition of key values (including KPIs) in the marine park were all assessed as being in Good or Satisfactory condition. In the 2011/12 report a condition rating of 'good' was assigned to four KPI values; water quality, corals, seascapes and non-target finfish. This rating was based on the fact that the condition of these values is good and the pressure on these values tends to be low (i.e. low extraction or localised to high use sites).

A condition rating of 'satisfactory' was assigned to five KPI values; targeted finfish, mangrove, coastal communities, turtles and wilderness. Although the condition of these values remains relatively stable, the pressures on them remain high or in some cases are increasing. These pressures include increased human visitation, climate change, elevated sea temperatures, cyclonic events, introduced feral species, predation and disturbance.

DEC has demonstrated good management responses through activities such as feral animal baiting, beach closures, sediment sampling and annual turtle nesting data collection. DEC will need to continue to manage these pressures, particularly the expected increase in visitation to ensure that these key ecological values remain stable into the future.

Advice from DoF

The advice from DoF on the status of KPIs and other key values they have responsibility for (i.e. Finfish, Invertebrates) was provided on a broad bioregional scale, consistent with DoF's Ecosystem Based Fisheries Management (EBFM) framework. DoF have advised that within the Gascoyne Coast Bioregion, two key ecosystems (Ningaloo & Exmouth Gulf) demonstrate structure and biodiversity (at a bioregional level) that is considered to be at an acceptable level.

DoF undertake research and monitoring of the use of fish resources at a bioregional level for commercial fisheries relevant to the Ningaloo Marine Park including Exmouth Gulf Prawn Managed Fishery, Gascoyne Coast Demersal Scalefish Fishery, Mackerel Managed Fishery, Marine Aquarium Fish and the Specimen Shell Managed Fishery.

One of the H-KMS strategies (7.1.4.4) for Coral Reef Communities (KPI) is '*Undertake research and monitoring to assess the ecosystem effects of recreational fishing on coral reef communities (i.e. trophic cascades)*'. Recent work by Hall and Wise (2011) examined trophic effects for the Gascoyne Bioregion and found no reduction in the mean trophic level or mean maximum length in finfish catches recorded in the Gascoyne over the last 30 years.

The DoF State of the Fisheries Report 2011/12 reports that stock levels of indicator finfish species (pink snapper, goldband snapper and spangled emperor) in the Gascoyne bioregion are adequate or recovering. However there is still limited understanding to recreational catches and level of effort at a marine park scale. DoF expect that the new iSurvey will help to provide better information at a park scale in the future.

Challenges

At present DoF have no capacity to monitor and report on commercial and recreational fishing catch/effort or assess the level and effect of fishing at a finer marine park scale. It continues to be a challenge for DEC and MPRA to make assessments of targeted finfish and invertebrates at a park level based on assessments conducted at a bioregional scale. For example, even though the stock level for spangled emperor is assessed by DoF as 'adequate' there is an apparent localised depletion of spangled emperor in the Northern Gascoyne Region due to overfishing occurring north of Point Maud. DoF are currently working with DEC to resolve this issue for marine park scale reporting into the future.

DEC/DoF Collaboration

It is recognised that both DEC and DoF have significant responsibilities committed to the protection and management of the State's marine reserves and it is essential that both departments work together in a collaborative way to ensure cost effective outcomes. The collaborative management arrangements between DEC and DoF are outlined in an agreed MOU and collaborative management of marine parks has continued to improve state-wide through the work of the Interdepartmental Committee (IDC) and the development of Collaborative Operational Plans (COPs) for each marine park and reserve.

The Ningaloo Marine Park has an effective COP in place and operational arrangements on the ground between DEC and DoF has seen effective collaboration on compliance and enforcement (including education and interpretation) through joint field operations, cross authorisation, resource sharing, compliance strategies and data management.

Both DEC and DoF continue to complete and agree on activities within the COP each financial year.

Education and Community stewardship

The audit identified that the education and communication of the marine park is being done well and effectively. All the generic education and interpretation objectives, strategies and targets are being implemented and the result has been a positive shift in public perception and community stewardship of the marine park in recent years.

There has also been good collaboration with stakeholder groups such as commercial operators, who distribute information, collect and share data and provide passengers with education and interpretation material on behalf of DEC.

There has been a trend in the community wanting more information and feedback about the science of (and justification for) sanctuary zones. Many stakeholders felt there was research that was not being communicated back to the community even though there are mechanisms in place such as the Ningaloo Atlas. It is important that the research information is made available to the community to increase their understanding of the ecological values and processes in the marine park and what impact their behaviour and use may have on these important values.

5. SUMMARY OF KEY MANAGEMENT ISSUES

There were a number of management issues identified during the audit process including DEC access to the southern coastal strip, human usage, boat and mooring management and a number of WAMSI findings. Of most significance was the increasing trend in visitor numbers to the marine park and the adjoining Cape Range National Park.

2015 Coastal Exclusion Process

The audit highlighted that the implementation of the management plan in the northern areas of the reserves including the adjoining Cape Range National Park and the Jurabi Coastal strip was effective where DEC have unrestricted access to the coastal landforms. In these areas DEC is able to implement strategies such as managing commercial and recreational access, assessing damage and planning coastal rehabilitation. The overall condition of the coastal strip in the north is considered good.

There are some conservation management initiatives being undertaken by pastoralist adjoining the marine park, such as the Gnoraloo Turtle Conservation Program. However, management appears far less effective in the southern areas of the marine park, particularly in respect to the 40 metre coastal strip adjacent to a number of pastoral lease stations where DEC has limited access.

Access to DEC land, through pastoral lease stations, and management of the coastal strip continues to be an issue and as a result, a number of H-KMS strategies have not been implemented to the full extent in those areas, particularly those strategies relating to Coastal Biological Communities, Geomorphology and Coastal Use. The condition of the coastal strip in the southern part of the marine park is a concern particularly when examining results of aerial photography at Lefroy Bay which show evidence of degraded habitat and increased access tracks over the past 40 years (since 1969).

➤ ***Recommendation 1: The MPRA recommends that the 2015 Coastal Exclusion negotiations are finalised as soon as practicable to ensure that access issues are resolved and DEC management of the marine park in those areas can be carried out effectively to meet the management plan objectives.***

If negotiations are not resolved or resolved in a manner that does not support DEC management of the coastal strip in these areas, the MPRA would support and encourage the local DEC office to implement strategies and gain unfettered access to these areas to allow for effective management to occur.

Increasing human pressure

There continues to be a high pressure on the KPI values of Coastal Biological Communities, Targeted Finfish, Wilderness and Seascapes from increased human activities such as fishing, recreation and tourism.

Increasing number of visitors

Increasing visitor numbers were identified as the main pressure on the Ningaloo Marine Park. DEC undertake aerial monitoring of visitor numbers each year, results of which show an increasing trend in visitation numbers at peak periods. The number of visitors to Cape Range National Park, coastal camp counts in April & July school holidays and the number of visitors to key recreational (snorkel) sites such as Turquoise Bay and Oyster Stacks has steadily increased. The graph below shows visitor numbers for Cape Range National Park have increased from just over 100,000 in 2001/02 to over 240,000 in 2011/12.

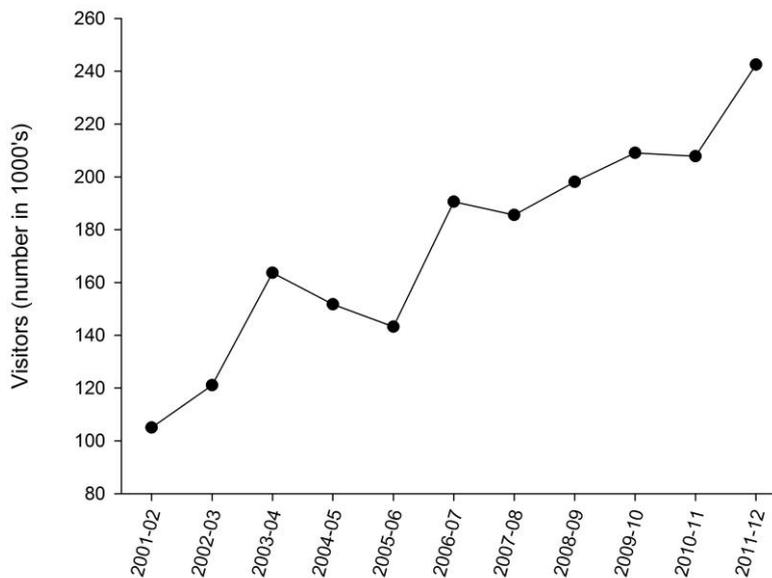


Figure 1: Cape Range National Park visitor numbers 2001/02 to 2011/12.

Coral Bay continues to be the main tourist node and the Shire of Carnarvon is currently undertaking a 25-year visionary review of Coral Bay including extensions and settlement planning. The Shire of Carnarvon has noted an increase in visitation to Coral Bay, with an overflow of visitors to nearby pastoral stations such as Warrora and Quobba.

If the continued increase in visitors to Ningaloo Marine Park isn't managed effectively it has potential to impact on social and ecological values of the marine park. This may include further demand for amenities, diminishment of the wilderness experience and impacts on the ecological values through increase in extractive activities (i.e. fishing) being undertaken in the marine park.

➤ **Recommendation 2: The MPRA recommend that DEC liaise with the Local Government Authorities to monitor and manage the expected increase in visitation to Ningaloo Marine Park, and ensure collaboration in respect to planning, promotion and sustainable tourism.**

Potential conflict amongst user groups

The diversity of visitors is also changing from mostly grey nomads, families and overseas travellers to now also include a greater proportion of Fly In/Fly Out – FIFO workers. The experiences these different groups wish to pursue when visiting the marine park is also quite different. For example,

the Grey Nomads often set up for a longer stay and seek a remote wilderness experience. Whereas, the FIFO workers may stay a shorter period (i.e. on their week off) and seek a recreational experience that includes watersports and/or fishing. There is potential for this to create conflict amongst user groups. DEC has already recognised an increasing number of different water sport user groups, many with conflicting interests (e.g. kite surfers, snorkelers, jet skis). Further investigation needs to be undertaken as to whether there are in fact conflicts arising from increased visitor numbers and diversity of user groups, as well as mechanism to manage potential conflicts.

Impacts on ecological values

The increase in visitor numbers correlates with the increase in extractive activities. There has been concern raised by both DEC and DoF, as well as many stakeholders, about the increasing pressure on fish stocks from recreational fishing.

DoF also reports that there is an apparent localised depletion of spangled emperor in the Northern Gascoyne Region due to overfishing occurring north of Point Maud.

There has been positive feedback on recent changes to State-wide fishing regulations, which has resulted in banning consignment of fish from Exmouth and reduced the bag limit for some species in the Gascoyne Coast bioregion. It is essential that monitoring is in place to determine the effectiveness of those changes.

Impacts on social values (wilderness and seascapes)

The increase in visitor numbers and user groups has the potential to impact on the social and ecological values of the marine park. The potential impacts are degradation to habitat, increase in extractive activities (fishing), competition for amenities/facilities (campsites) and impact on wilderness and seascape values.

The 'Wilderness' and 'Seascape' social values of the marine park are an important part of the Ningaloo 'experience'. These are both KPI values and have a number of management strategies associated with them that have not been implemented or completed to date. The issue is that there are uncertainties surrounding how 'Wilderness' and Seascape' values are effectively measured. Therefore there are few qualitative data available on the condition of these particular KPIs in the Ningaloo Marine Park.

The Wilderness and Seascape values are the main values associated with the Ningaloo experience. It is important that managers have a good idea of the condition of these important social values and what activities have the potential to negatively impact on them.

➤ ***Recommendation 3: The MPRA recommend that a) methods for quantifying wilderness and seascape values be developed in conjunction with DEC Marine Science Program and b) priority should be given to the quantitative assessment of the wilderness and seascape KPI values of the Ningaloo Marine Park.***

In addition, the development of a Recreational Master Plan for the marine park (Strategy 7.2.5.4) would address some of the issues in regards to increased visitor numbers and identifying potential user conflicts. Further discussion of Wilderness and Seascapes is under Section 7. It should be noted

that a park wide master development plan will be difficult to design and implement until the tenure issues adjacent to the marine park are resolved through the 2015 pastoral exclusion process.

WAMSI Node 3 recommendations

The Ningaloo Research Program (WAMSI Node 3) was undertaken between 2005-2011 and included more than \$30 million in funding towards projects addressing information needs identified in the management plan (refer to section 4). A number of management issues and recommendations came out of this research program, a number of which were of interest to the MPRA including:

- Review the Ningaloo Marine Park zoning scheme in the next review of the management plan in light of new information on the distribution of biodiversity and current under-representation of some habitats
- Consider removing shore based fishing zones within sanctuary zones of the marine park to enable more adequate protection of species such as spangled emperor
- Initiate more stringent management on the take of rock lobster to promote the recovery of the Western Rock Lobster in the marine park
- Consider additional management strategies to proactively maintain ecosystem resilience and biodiversity over the long-term in the face of increased recreational activity and climate change. This could include the ban on the take of herbivorous fish species (some target fish, intertidal reef communities and rock lobster populations are locally depleted) and review of other fishing regulations.

The results and recommendations of the WAMSI program have the ability to improve current management and contribute to future planning based on new knowledge of the biodiversity and physical environment.

➤ ***Recommendation 4: The MPRA recommend that the findings and recommendations from the WAMSI Node 3 report should be given due consideration by management agencies and in future review of the management plan.***

Mooring, Anchoring and Boat Ramps

The increase in boat visitation to the Ningaloo Marine Park has increased the pressure on the amount and type of mooring facilities available to the public. Feedback from stakeholders was that the current mooring system did not cater well for large recreational boats.

It is important that the mooring infrastructure of the marine park allows for an equitable range of users and is designed in line with the objectives of the marine park. DEC has developed a mooring and anchoring plan to identify areas in which moorings are acceptable and/or necessary from an environmental, safety and equity perspective (Strategy 9.3). This has also assisted in reducing adhoc anchoring throughout the park.

➤ ***Recommendation 5: The MPRA recommend that DEC consider the requirement for moorings for large recreational vessels and review the mooring and anchoring plan if required.***

Formal boat ramps are located within the marine park at Bundegi, Tantabiddi and Coral Bay. The development of the Coral Bay Maritime Facility in 2007 has reduced ad hoc launching of vessels at Ningaloo and been successful in moving boating traffic out of Bills Bay. The facility is managed by the Department of Transport (DoT). DoT has suggested that the facility should be excised from the marine park to allow them to manage it more effectively under the *Marine and Harbours Act 1981*. However, the MPRA are of the view that the Maud Sanctuary Zone which encompasses the boating facility is highly valued, and the Authority would be unlikely to support the excision of any portion of sanctuary zone from the marine park. The MPRA recommends other management options are investigated such as a lease agreement over the facility.

➤ ***Recommendation 6: The MPRA recommend that DEC and DoT resolves the tenure issues surrounding the Coral Bay Maritime Facility to ensure that it is managed effectively.***

There is also significant commercial shipping and industrial vessel (workboats, tugs and survey vessels) transiting through the marine park, and anchoring is not currently being actively managed in Exmouth Gulf. The MPRA supports the DoT and Australian Marine Safety Authority (AMSA) recommendation that an ‘area to be avoided’ be established encompassing the Ningaloo Reef. This would mitigate risk created by increasing vessel activity, prevent incursion by workboats servicing petroleum production facilities and protect the World Heritage Listed region from any ship sourced pollution.

6. RESPONSE TO PERIODIC AUDIT QUESTIONS

DEC is the lead agency responsible for the implementation of the management strategies listed in the management plan. The Department of Fisheries (DoF) also has a lead responsibility or a key role in the implementation of 31 strategies in the management plan relating to the management of fishing in the marine park. Both DEC and DoF each submitted a report to the MPRA on their respective implementation actions and advice for all the management strategies contained in the management plan.

The MPRA have used the information provided throughout the audit process to address the following questions:

- a) What strategies or actions of the management plan (ecological, social, and cultural) have not been implemented or are not being addressed? Are there any concerns in relation to delivering the plan strategies within ten years?***

A high percentage of strategies have been implemented (189 out of 214 strategies or 88%) to various stages (underway, partially completed or completed). Only 12% of strategies have *not* been implemented to date as summarised in Table 1. All but four H-KMS have been actioned to various degrees.

Table 1. Summary of management plan strategies not yet implemented

Management strategy priority	Total number of strategies not implemented or commenced
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rating	DEC Exmouth	DEC Marine Science	DoF
H-KMS	4	0	0
H	3	4	1
M	3	8	1
L	0	0	1
Total	10	12	3

The four H-KMS that have not commenced are:

Seascapes 7.2.3.1 Identify and determine the key characteristics and spatial extent of the major seascapes of the reserves (CALM, LGA) (H-KMS).

Wilderness 7.2.4.2. Undertake research to characterise 'wilderness' areas of the reserves and develop performance measures and management targets for designated 'wilderness' areas (CALM, NSDO, LGA) (H-KMS).

Watersports 7.2.5.2 Maintain a database of the nature, spatial and temporal patterns of all existing uses in the reserves (CALM) (H-KMS)

Public Participation 8.6.1 Develop a public participation strategy within one year of gazettal (H-KMS)

➤ **Recommendation 7: The MPRA recommend that priority be given to commencing the four outstanding H-KMS strategies over the next five years of the management plan.**

b) If the prioritisation identified in the management plan is not being adhered to, why

There were three strategies that were identified as having a different priority than that assigned in the management plan:

3.2.3 Educate users of the reserve about the ecological importance of the reserves geomorphology, particularly the fragile coastal landforms (H-KMS)

DEC indicated that this strategy was being delivered successfully through the Milyering Visitor Centre and Yardie Creek Boat Tours, however it was viewed that this was a High (H) importance strategy rather than a H-KMS. It is considered that the management of the fragile coastal landforms should be a higher priority than education as there is urgent need for management intervention to occur as soon as possible to mitigate any further damage, noting that effective education is currently occurring.

3.2.6 Develop a rehabilitation strategy for the 40m strip above high tide mark within the park (M)

It was noted that this strategy has not been implemented to date due to issues associated with access to the coastal strip in the southern part of the marine park. Given the concern with the condition of the 40 m coastal strip, and the difficulties in gaining access to the area it was suggested that this strategy be promoted to a H-KMS once the 2015 coastal exclusion process has been resolved.

7.1.10 (3) *Where appropriate, designate camping areas within the park (M)*

This strategy has been implemented well in the adjacent Cape Range National Park, and some input has been had at Warroora Station, but this has been actioned to a lesser extent in the south due to limited access via pastoral stations and the contentious nature of the negotiations. DEC has recommended that this strategy be promoted to High (H) once the 2015 coastal exclusion process is resolved to ensure that impacts of camping can be managed strategically and effectively across the park.

➤ ***Recommendation 8: The MPRA recommend that the development of the rehabilitation strategy (3.2.6) and designation of camping areas (strategy 7.1.10.3) become high key management strategies once the 2015 pastoral exclusion process is finalised.***

Should the coastal exclusion negotiations become extended then these management strategies should become high KMS with strong government support to implement the actions required.

c) What is the current status of the ecological and social values in the Management Plan

A detailed summary of the Condition of the KPI's is provided at Section 4 above. The summary of report cards for all ecological and social values in the 2011/12 DEC performance assessment report for Ningaloo/Muiron Islands marine reserves is provided at Appendix 3.

d) Are there any concerning trends in any of the ecological assets (condition-pressure-response)

With the exception of increasing pressure of visitor numbers - there were no additional concerning trends identified by DEC or DoF during the periodic audit process. It was acknowledged that the knowledge base of scientific information available for management of Ningaloo Marine Park has increased significantly over the last 20 years and particular in more recent year with the coordinated effort of WAMSI, and there is now a greater ability to identify trends over time.

e) Are there any assets for which the management targets are not being met- especially those that are key performance indicators (KPIs)?

Almost all KPIs were assessed as having management targets that are being progressively met. However, for the KPI values where HKMS have not been implemented some of the short term targets have not been met. For example, the short term management target for Wilderness is to "*designate wilderness areas and designate guidelines for the maintenance of these values within three years*". For various reasons discussed under section 5 regarding the measurement of wilderness and seascapes this management target has not been met.

f) Are management responses appropriate to the concerns in (d) or (e), is adaptive management occurring? Is DEC management of these assets effective and efficient?

Pressures on the marine park values remain high or in some cases increasing. These including human visitation, extraction activities (fishing), climate change, cyclonic events, introduced feral animals, predation and disturbance. DEC has demonstrated good management responses through

management activities such as feral animal control, annual turtle nesting data collection and beach closures.

In regards to Wilderness and Seascape values, the MPRA understand the difficulties in measuring these values but encourage DEC to investigate how these values can be measured, and quantify these for the Ningaloo Marine Park so that appropriate management of these assets can be undertaken into the future.

g) Are there any significant concerns in regards to achieving social and cultural outcomes identified in the management plan?

There are a number of social and cultural outcome identified in the management plan including Indigenous heritage, maritime heritage, seascapes (KPI), Wilderness (KPI) Watersports, Marine nature based tourism, coastal use, recreational fishing, scientific research, education, commercial fishing, petroleum development. The areas of concern are related to achieving outcomes for the values of Wilderness, Seascapes and Watersports.

Wilderness and Seascape

The definition of both values is in itself a challenge. The wilderness value is expressed as areas of selected coastline and remote coastal waters that offer opportunities for remote experiences that are integral to the Ningaloo experience. Seascapes are panoramic vistas of turquoise lagoon waters, reefs, beaches, breaking surf and the blue open ocean beyond the reef line that are major attractions of the reef. Wilderness and Seascapes are both KPI's that have a number of management strategies associated with them that have not been implemented or completed.

The main issues are a) there is currently no mechanism to measure wilderness or seascapes b) this leads to a lack of quantitative data to assess these KPI values and c) the risks to these values is high and the pressure is continuing to increase (see Section 5 on increasing human pressure).

Watersports

The social value 'Water Sports' had a number of H-KMS that had not been completed due to lack of resources and other priorities. DEC has progressed the strategies to assess the nature, level spatial and temporal patterns and potential impacts of watersports in the marine park. This has identified a need to identify and formalise zones of different patterns of recreational use and identify overlaps with natural values (such as turtle activity). The development of strategies needs to be formalised for this value.

➤ ***Recommendation 9: While DEC have commenced the development of a Recreation and Tourism Master Plan (Strategy 7.2.5.4), the MPRA acknowledge this is a H-KMS and recommended that the completion of the plan is given high priority.***

h) Are there any major issues that are not being adequately addressed?

The two major issues that the MPRA consider are not being adequately addressed are a) seascapes and wilderness KPI values and b) management of 40 metre wide coastal strip in the southern area of the marine park. The MPRA have made recommendations earlier in this report (Recommendation 1 & 3) in regards to these issues.

i) Are there any changes in management focus/ effort required to deliver the expectations of the management plan and its outcomes? What recommendations are made

DEC need to focus on formalising management of recreational activities and development of associated zoning, including water sports, mooring, commercial tourism operation and land based activities.

There needs to be greater focus on wilderness and seascape KPI values. As per recommendation 3 the MPRA suggest that a) methods for quantifying wilderness and seascape values be developed in conjunction with DEC Marine Science Program and b) priority should be given to the quantitative assessment of the wilderness and seascape KPI values of the Ningaloo Marine Park.

APPENDIX 1: LIST OF STAKEHOLDERS

Stakeholder Theme	ORGANISATION/GROUP	Relevant Mgt Plan strategies
Oil and Gas industry	Apache BHP Billiton Woodside Chevron NOPSEMA	7.2.12 7.2.12 7.2.12 7.2.12 7.1.3, 7.2.12
Conservation	Cape Conservation Group Conservation Council Ningaloo World Heritage Committee Birds Australia/BirdLife	
Fishing	Department of Fisheries WAFIC Exmouth Game Fishing Club Recfishwest	7.1.17
Research & Monitoring	WAMSI	7.2.9
Pastoral Leases	Ningaloo station Warrora Station Gnaraloo Station Cardabia Station Quobba Station	7.1.10 & 7.2.7 7.1.10 & 7.2.7 7.1.10 & 7.2.7 7.1.10 & 7.2.7 7.1.10 & 7.2.7
Indigenous groups	North West Cape Aboriginal Corporation Baiyungu Aboriginal Corporation Yamatji Land and Sea Council	7.1.18, 7.1.19, 7.2.1 7.1.18, 7.1.19, 7.2.1 7.1.18, 7.1.19, 7.2.1
LGAs	Shire of Exmouth Shire of Carnarvon	7.1.1, 7.2.3, 7.2.4 7.1.1, 7.2.3, 7.2.5
Government	Department of Transport Department of Fisheries Western Australian Maritime Museum Department of Regional Development and Lands Department of Mines and Petroleum Landgate Department of Defence Water Corporation Tourism WA Environmental Protection Authority Department of Environment and Conservation	7.2.2 7.1.1, 7.2.4, 7.2.7 7.1.2 & 7.1.12 8.1 7.1.9 7.2.5 & 7.2.6

	Department of Planning	7.1.10 7.2.4 and 7.2.7
Commonwealth	SEWPAC	7.2.12
Tourism operators	Exmouth visitors centre Coral Coast Tourism Association Commercial Tour Operators	
Commerce/Development	Exmouth Chamber of Commerce Gascoyne Development Commission	

APPENDIX 2: QUESTIONS FOR PERIODIC AUDIT

- (a) What strategies or actions of the management plan (ecological, social, and cultural) have not been implemented or are not being addressed? Are there any concerns in relation to delivering the plan strategies within ten years?*
- (b) If the prioritisation identified in the management plan is not being adhered to, why?*
- (c) What is the current status of the ecological and social values in the Management Plan?*
- (d) Are there any concerning trends in any of the ecological assets (condition-pressure-response)*
- (e) Are there any assets for which the management targets are not being met- especially those that are key performance indicators (KPIs)?*
- (f) Are management responses appropriate to the concerns in (d or e), is adaptive management occurring? Is DEC management of these assets effective and efficient?*
- (g) Are there any significant concerns in regards to achieving social and cultural outcomes identified in the management plan?*
- (h) Are there any major issues that are not being adequately addressed?*
- (i) Are there any changes in management focus/ effort required to deliver the expectations of the management plan and its outcomes? What recommendations are made?*

APPENDIX 3: 2011/12 SUMMARY OF REPORT CARDS

The following summarises the condition, current pressure and anticipated pressure rating assigned for values (including key performance indicators (KPIs)). Refer to the full report (Barnes 2012) for the full report cards for all values.

Key Value	Condition	Pressure	Response	Assessment Confidence (Condition)	Assessment Confidence (pressure)	Pressure
Ecosystem structural physical - chemical components						
Geomorphology	GOOD	LOW	GOOD	HIGH	HIGH	CONSTANT
Sediment Quality	GOOD	LOW	GOOD	HIGH	HIGH	CONSTANT
Water Quality (KPI)	GOOD	LOW	GOOD	MEDIUM	MEDIUM	INCREASING
Coral Reef Communities (KPI)	GOOD	MODERATE	GOOD	MEDIUM	MEDIUM	CONSTANT
Filter Feeding Communities (other than coral reefs)	GOOD	MODERATE	SATISFACTORY	LOW	MEDIUM	CONSTANT
Shoreline intertidal reef communities	SATISFACTORY	MODERATE	SATISFACTORY	LOW	MEDIUM	CONSTANT
Soft sediment communities	GOOD	LOW	SATISFACTORY	MEDIUM	MEDIUM	CONSTANT
Macroalgal and seagrass communities	GOOD	LOW	SATISFACTORY	MEDIUM	MEDIUM	CONSTANT
Mangrove Communities (including mudflats) (KPI)	SATISFACTORY	LOW	SATISFACTORY	MEDIUM	MEDIUM	CONSTANT
Coastal Biological Communities (KPI)	SATISFACTORY	HIGH	GOOD	MEDIUM	MEDIUM	INCREASING
Seabirds, Shorebirds and Migratory waders	GOOD	LOW	SATISFACTORY	LOW	MEDIUM	CONSTANT
Finfish (KPI) -(target)	SATISFACTORY	HIGH	SATISFACTORY	MEDIUM	MEDIUM	INCREASING
-(non-target)	GOOD	LOW	SATISFACTORY	MEDIUM	MEDIUM	CONSTANT
Invertebrates -(target)	SATISFACTORY	MODERATE	SATISFACTORY	MEDIUM	MEDIUM	INCREASING
-(non-target)	GOOD	LOW	SATISFACTORY	HIGH	HIGH	CONSTANT
Sharks and Rays	SATISFACTORY	MODERATE	GOOD	MEDIUM	MEDIUM	INCREASING
Whale sharks	SATISFACTORY	MODERATE	GOOD	MEDIUM	HIGH	INCREASING
Manta Rays	GOOD	LOW	SATISFACTORY	LOW	MEDIUM	INCREASING
Whales and Dolphins	GOOD	LOW	SATISFACTORY	HIGH	MEDIUM	INCREASING
Dugongs	SATISFACTORY	LOW	SATISFACTORY	MEDIUM	MEDIUM	CONSTANT
Turtles (KPI)	SATISFACTORY	MODERATE	GOOD	MEDIUM	MEDIUM	CONSTANT
Seascapes (KPI)	GOOD	MODERATE	SATISFACTORY	MEDIUM	MEDIUM	INCREASING
Wilderness (KPI)	SATISFACTORY	HIGH	SATISFACTORY	MEDIUM	MEDIUM	INCREASING

LEGEND

CONDITION ¹	PRESSURES	RESPONSE	ASSESSMENT CONFIDENCE ²	MANAGEMENT EFFECTIVENESS ³	PRESSURE ⁴
EXCELLENT	LOW	GOOD	HIGH	HIGH	DECREASING TREND
GOOD	MODERATE	SATISFACTORY	MEDIUM	MEDIUM	CONSTANT
SATISFACTORY	HIGH	UNSATISFACTORY	LOW	LOW	INCREASING TREND
UNSATISFACTORY					
POOR					

¹ Quantitative data is required to assign either the EXCELLENT or POOR rating, while quantitative data &/or qualitative information can be used to assign GOOD, SATISFACTORY or UNSATISFACTORY ratings.

- **EXCELLENT** – Management targets met. Data indicates strong trend in desired direction
- **GOOD** – Management targets met. Moderately strong trend in desired direction &/or low levels of historical pressures are likely to have a low impact on the condition.
- **SATISFACTORY** - Management targets met. Weak trend in desired direction and/or only moderate levels of historic pressures are likely to have had only moderate impacts on the condition
- **UNSATISFACTORY** - Management targets not met. Weak to moderate trend in non-desired direction and/or other information indicate historical pressures are likely to have had a major negative impact on the condition.
- **POOR** - Management targets not met. Data indicates a strong trend in non-desired direction

² Level of certainty in the assessment process

³ The level of effectiveness of the management response in regards to managing pressure/s and improving condition status

⁴ The anticipated pressure in the next three years

APPENDIX 4: OTHER ISSUES RAISED BY STAKEHOLDERS

Summary of other issues raised by stakeholders during the audit process:

	More DEC operational staff are required on the ground. Suggestions for a full-time DEC Officer in Coral Bay
	Overnight mooring and anchoring facilities required between Exmouth Gulf and Coral Bay
	Major concerns in the community over the impacts of the Wheatstone project, and oil and gas in general (i.e. seismic surveys only 100km from World Heritage Area)
	Exmouth Gulf should be included in the marine park. Exmouth Gulf needs to be protected for its indigenous value as a healing place for whales.
	Sanctuary zone sizes should be increased
	The management plan should be updated to reflect current government agencies and legislation i.e. Department of Water, Department of Transport, Department of Planning, Department of Regional Development and Lands, Department of Mines and Petroleum, National Offshore Petroleum and Environmental management Agency (NOPSEMA)
	Coral Bay Maritime Facility should be excised from the marine park and vested in the Department of Transport.
	Research needs to be fed back into the Exmouth/Coral Bay communities. Ningaloo Atlas profile has decreased
	Need to consider seasonal closures of turtle-nesting beaches
	Indigenous knowledge and culture needs to be incorporated into joint management. There is currently no cultural management plan or Park Council.
	Non Traditional Owners are collecting crabs in the area and Torres Strait Islanders are hunting dugongs.
	Pastoralist should be a delegated authority to manage the terrestrial component of the marine park adjacent to stations and be reimbursed for costs associated with managing DEC land
	Difficult to get DoF to respond to sanctuary zone incidents in a timely manner due to the remoteness and size of the marine park
	Strategy 4 in Section 7.1.9 is no longer applicable as there is no interaction between the groundwater abstraction by the Department of Water at its Exmouth borefield and the Mangrove Communities at Exmouth
	DEC and DoF currently don't have adequate resources to manage visitor access to the marine park in the south adjacent to pastoral lease stations
	DoF should introduce "Wilderness Fishing" zones where you can only take one fish per day.
	Multiple access points makes management and dissemination of information difficult
	Commercial GPS locations for sanctuary zones unclear or incorrect
	Southern boundary of marine park unclear – need better signage at Red Bluff
	Coral Coast Advisory Committee ceased and no other Management Advisory Committee (MAC) – community involvement not as good, but should improve through the recently appointed World Heritage Advisory Committee

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