

# Rowley Shoals Marine Park Management Plan 2007-2017

## Periodic Assessment Report

April 2015



**MPRA**  
MARINE PARKS &  
RESERVES AUTHORITY

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## **Acknowledgements**

The Marine Parks and Reserves Authority (MPRA) would like to thank the Department of Parks and Wildlife (Kimberley District and Planning Branch) and the Department of Fisheries (Broome and Perth) for all the assistance provided in this assessment process.

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

## Summary

The Marine Parks and Reserves Authority (MPRA) have conducted a periodic (5 year) assessment of the implementation of the Rowley Shoals Marine Park Management Plan 2007-2017. The assessment was undertaken in accordance with the MPRA Audit Policy (2008) and Audit Guidance Statement (2012) and is consistent with the MPRA functions under the *Conservation and Land Management Act 1984* (CALM Act).

The assessment specifically aimed at addressing the MPRA periodic assessment questions which aim to;

- review all key ecological and social values identified in the management plan;
- consider progress in achieving strategic objectives in the management plan; and
- identify management plan implementation issues.

It is acknowledged that pressures on the values of the Rowley Shoals Marine Park (RSMP) lie both within and outside the control of the Department of Parks and Wildlife (Parks and Wildlife). In addressing the assessment questions, the MPRA primarily considered pressures that occur within the marine park.

The assessment highlighted that the management system is operating effectively and that Parks and Wildlife are progressively meeting management objectives through the implementation of strategies in the Rowley Shoals Marine Park Management Plan 2007-2017.

Key findings included:

- A large proportion of management strategies have been implemented (either completed or partially completed) since the management plan's inception in 2007.
- The marine park is in good condition. All key performance indicators (KPIs), both ecological and social are reported to be in 'good' or 'excellent' condition.
- The amount of quantitative data available to make assessments has improved greatly due to the work of Parks and Wildlife Marine Science Program (MSP) in collaboration with Parks and Wildlife district staff, the Department of Fisheries (DoF) and external researchers.
- Management by Parks and Wildlife appears to be efficient and effective within the limits of the allocated resources. An increased presence at the site would be beneficial.
- A number of key management issues need to be addressed in the near future in order for Parks and Wildlife to continue to manage the marine park in an efficient and effective manner, including: managing the park with limited resources from a distance and planning/mitigating for impacts from climate change.
- Community stewardship for the marine park by commercial and recreational users is high.
- There is desire from a small number of charter tour operators to allow for the catch and on site consumption of *Plectropomus spp.* within the bounds of the Rowley Shoals Marine Park.

As a result of the assessment review process the MPRA have made a number of recommendations below.

<b>Recommendation</b>	
1	<b><i>Priority is given to implementing relevant management strategies that have not yet been completed.</i></b>
2	<b><i>Social values and strategies should be better integrated and addressed in the ongoing research plan for the park.</i></b>
3	<b><i>Parks and Wildlife consider and implement strategies to assist in mitigating the impacts of climate change on coral reef communities.</i></b>
4	<b><i>Parks and Wildlife determine methods for measuring seascape value and undertake a quantitative assessment of the condition of this value for the marine park.</i></b>
5	<b><i>Opportunities for mooring upgrades and possible additional moorings to be investigated where appropriate.</i></b>
6	<b><i>A new marine parks brochure should be printed as soon as relevant legislation has been implemented.</i></b>
7	<b><i>Research should be conducted on the population and other characteristics of <i>Plectropomus</i> spp. at the Rowley Shoals before any changes are made to fishing regulations.</i></b>
8	<b><i>A comprehensive survey should be conducted seeking the opinions of all charter operators to the Rowley Shoals before any changes are made to fishing regulations.</i></b>
9	<b><i>A study of recreational fishing effects including post-catch mortality of <i>Plectropomus</i> spp. should be conducted before any changes are made to fishing regulations.</i></b>
10	<b><i>Investigate utilising spare berths on charter operator's vessels for departmental staff to access the marine park</i></b>

## **1. Introduction**

### **1.1 Management plan history**

The Rowley Shoals Marine Park was gazetted in May 1990 as a class A Marine Park and on 10 December 2004, the park boundary was amended to extend the park to the state waters limit. The Rowley Shoals Marine Park Management Plan 2007-2017 was formally approved by the Minister for the Environment in April 2007.

### **1.2 Legislative context and MPRA role**

The statutory function of the MPRA is established under section 54 of the CALM Act which requires the MPRA to be responsible, in relation to all land which is vested in it whether solely or jointly with an associated body, for (a) the preparation of proposed management plans; and (b) the assessment of expiring plans and preparation for further management plans. Expiring plans do not lapse until they are formally revoked by the Minister and replaced with a new plan.

The assessment 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;
- ii. to set performance criteria for evaluating;
- iii. to conduct periodic assessments of the implementation of management plans.

The MPRA has established an Audit Policy (2008) and endorsed a performance assessment framework to give effect to the assessment function. The assessment process was reviewed in 2012 and a set of assessment and review guidelines were produced. These documents are part of an integrated system of Parks and Wildlife 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 assessments.

### 1.3 Parks and Wildlife 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 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. These reflect the highest conservation (from biodiversity and ecosystem integrity perspectives) and social priority outcomes. The condition of KPI's is summarised in section 4.3.

## 2. Objectives

The objective of the periodic assessment is to conduct a mid-term review and report on the implementation of the management plan for the Rowley Shoals Marine Park. It is intended to meet obligations under the CALM Act, and be consistent with the MPRA Audit Policy (MPRA 2008, 2012).

This report addresses the 'periodic assessment questions' specified in the MPRA periodic assessment process. These standard questions were asked of all stakeholders and managers and are listed below.

1. 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?
2. If the prioritisation identified in the management plan is not being adhered to, why?
3. What is the current status of the ecological and social values in the management plan?

4. Are there any concerning trends in any of the ecological assets (condition-pressure-response)?
5. Are there any assets for which the management targets are not being met- especially those that are key performance indicators (KPIs)?
6. Are management responses appropriate to the concerns in (d or e), is adaptive management occurring? Is Parks and Wildlife management of these assets effective and efficient?
7. Are there any significant concerns in regards to achieving social and cultural outcomes identified in the management plan?
8. Are there any major issues that are not being adequately addressed?
9. Are there any changes in management focus/ effort required to deliver the expectations of the management plan and its outcomes? What recommendations are made?

### **3. Periodic assessment process – Rowley Shoals Marine Park**

The periodic assessment was undertaken by the MPRA Audit Subcommittee, under delegation from the full Authority. The MPRA Audit Subcommittee members who conducted the assessment were Emeritus Winthrop Professor Diana Walker (Audit Subcommittee chair), Dr Kellie Pendoley, Mr Jeff Cooper and Ms Ida Holt.

#### **3.1 Scoping and pre-assessment**

The MPRA liaised with Parks and Wildlife (Planning Branch, West Kimberley District & Marine Science Program) as well as DoF to initially scope out the likely key issues and approach to the assessment. Primary responsibility for implementation of the management plan is delegated to these two agencies.

#### **3.2 Consultation**

As part of the assessment the MPRA consulted with Parks and Wildlife staff, commercial operators, recreational users, conservation NGOs and members of the local community. Letters were sent to relevant stakeholders, including other government agencies notifying them of the assessment. Stakeholders were invited to comment on the implementation of management plan strategies as well as the MPRA 'periodic assessment questions'. The opportunity to attend a stakeholder session with the MPRA was also offered. A full list of stakeholders that were contacted is provided in Appendix 1 and a summary of the key consultation undertaken is provided below:

- The MPRA consulted with Parks and Wildlife, the lead government agency responsible for the implementation of the management plan through meetings and interviews with key staff;
- The MPRA wrote to other state and commonwealth government departments directly mentioned in the management plan and feedback was received from the Department of Fisheries, Department of Water, Department of Mines and Petroleum, Department of Lands, Tourism WA, Environment Protection Authority, WA Museum and the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).
- The MPRA contacted all other key stakeholders including the oil and gas industry, indigenous groups, conservation groups, commercial and recreational fishing, local government authorities, commercial operators and research facilities. Feedback was

received from the WA Fishing Industry Council (WAFIC), Global Flyway Network, Reel Teaser, North Star Cruises, The Great Escape Charter Co, Kimberley Coast Cruising Yacht Club and Kimberley Marine Tourism Association.

- The MPRA met with Recfishwest in Perth to discuss their feedback on the assessment.

### 3.3 Site visit, assessment workshop and stakeholder consultation session

The MPRA Audit Subcommittee travelled to Broome on 8-9 December 2014 to undertake an assessment workshop at the West Kimberley District Parks and Wildlife Offices. Parks and Wildlife Marine Park Coordinator, Alison McCarthy reported on the implementation of the management plan. This was also an opportunity to showcase achievements within the park and highlight challenges and management issues. The regional visit was also an opportunity for the MPRA Audit Subcommittee to discuss written submissions received and synthesise the key issues arising from stakeholder feedback. The MPRA also met with District Manager Alan Byrne briefly at this time as part of the review process.

In the afternoon of 8 December 2014 an open stakeholder consultation session was held, where stakeholders had the opportunity to speak with the MPRA informally. Representatives from The Great Escape, North Star Cruises and Kimberley Marine Tourism Association attended the session.

The MPRA met with the Department of Fisheries' Broome District staff on 9 December 2014.

## 4. Response to Periodic Assessment questions

Parks and Wildlife is the lead agency responsible for the implementation of the strategies listed in the management plan. DoF also has a key role in the implementation of strategies in the management plan relating to the management of fish resources in the marine park. Both Parks and Wildlife and DoF provided a response to the periodic assessment questions, which are summarised below.

### 4.1 Strategy implementation

***Q1 What strategies in 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?***

Of the 77 strategies outlined in the management plan 67 have been implemented (either partially (<75%), substantially (>75%) or fully (100%)). There were no H-KMS not yet commenced as of June 2014.

**Table 1 Status of strategies in the Rowley Shoals Marine Parks Management Plan as of June 2014. Numbers in brackets under strategy priority indicate the total number of each priority strategy listed in the management plan.**

Strategy priority	Status of strategy			
	Completed	Substantially completed	Partially completed	Not commenced
H-KMS (23)	13	2	8	0
H (30)	13	10	5	2
M (19)	4	7	2	6
L (5)	3	0	0	2



TOTAL (77)	33	19	15	10
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As of June 2014, ten of the 77 strategies in the management plan were not commenced. These are summarised in table 2.

**Table 2 Summary of strategies in the management plan that are not yet implemented as of June 2014.**

Management Plan Ref	Strategy	Management Framework	Comments
9.1.2.6	Maintain a pollution inputs database for the Park (DPaW) <b>(M)</b>	Management & Administrative Frameworks	No pollution events recorded since 2007..
9.1.7.2	Maintain a database of the incidence of entanglement of, and boat collisions with, turtle species (DPaW) <b>(L)</b>	Management & Administrative Frameworks	No entanglements or boat strike recorded since 2007.
9.1.9.2	Develop and maintain a database of the incidence of entanglement, boat collisions and strandings of cetaceans (DPaW) <b>(L)</b>	Management & Administrative Frameworks	No entanglements or boat strike recorded since 2007
9.2.6.1	Provide formal advice to EPA and DMP in relation to the environmental assessment of proposed petroleum activities in the Park (MPRA, DPaW) <b>(M)</b>	Management & Administrative Frameworks	No new activities proposed since 2007.
9.2.6.2	Ensure the license conditions of approved petroleum industry projects include appropriate environmental performance measures, desired trends, short-term and long-term management targets, and monitoring and reporting requirements (DPaW, DMP, EPA) <b>(M)</b>	Management & Administrative Frameworks	No new activities proposed since 2007.
9.2.6.3	Ensure other users of the Park do not unnecessarily restrict future petroleum industry opportunities in appropriate zones in the Park (DPaW) <b>(M)</b>	Management & Administrative Frameworks	No new activities proposed since 2007.
8.1	Ensure appropriate advice is provided to relevant authorities with regard to proposed marine infrastructure and the defined ecological targets for the Park (DPaW, MPRA)	Management & Visitor Infrastructure	No new marine infrastructure proposed since 2007.
9.2.3.2	Assess proposals for structures within the Park to	Management & intervention	No new proposals received since 2007

Management Plan Ref	Strategy	Management Framework	Comments
	ensure that development proposals do not have significant impacts on the designated seascapes of the Park (DPaW, MPRA) <b>(M)</b>	Visitor Infrastructure	
7.4.9	Investigate opportunities for appointment of honorary enforcement officers (DPaW).	Patrol & Enforcement	There has been some cross authorisation opportunities for Parks and Wildlife and DoF staff since 2007.
7.7.2	Ensure that proponents of development proposals or activities with the potential to impact on the Park's values conduct appropriate compliance monitoring programs (DPaW).	Monitoring	No new proposals received since 2007

#### 4.1.1 Advice from DoF

DoF provided comments on strategies where it is either listed as the lead responsible agency for implementing the strategy, or has a key role in implementing the strategy. Of these strategies, DoF lists all but 3 strategies as either completed/ongoing or partially completed. Strategies which are not yet implemented, from a DoF perspective, are shown in table 3.

**Table 3 Strategies which are not commenced (from a DoF perspective) in the Rowley Shoals Marine Parks Management Plan as of June 2014**

Management Plan Ref	Strategy	Management Framework	Comments
7.1.1	Develop and progressively implement a coordinated and prioritised research program focussing on key values and processes of the Park (DPaW, DoF) <b>(H-KMS)</b> .	Research	Given current funding arrangements, DoF's capacity to support the research program is limited.
9.2.1.3	Facilitate ecological and social research in the Park conducted by research, academic and educational institutions, by providing financial and logistical assistance (DPaW, DoF). <b>(H)</b>	Research	Given current funding arrangements, DoF's capacity to facilitate ecological and social research in the RSMP is limited.
9.1.6.7	Undertake monitoring of fish feeding activities on finfish communities and restrict this activity as appropriate (DoF, DPaW). <b>(M)</b>	Monitoring	Fish feeding activities are regulated through Parks and Wildlife. DoF does not receive specific Government funding to undertake monitoring of fish feeding activities on finfish

Management Plan Ref	Strategy	Management Framework	Comments
			communities within the RSMP.

**Recommendation 1: Priority is given to implementing relevant management strategies that have not yet been completed.**

#### 4.2 Strategy prioritisation

**Q2 If the prioritisation identified in the management plan is not being adhered to, why?**

Parks and Wildlife identified two high key management strategies (H-KMS) which were not implemented at the end of the 2013-2014 reporting period. Progress has been made on one of these strategies since the completion of the 2013-2014 reporting period.

**Table 4 Management plan strategies where prioritisation has not been adhered to as of June 2014**

Strategy	Management Framework	Progress as of end 2014
Develop and progressively implement a coordinated and prioritised research program focussing on key values and processes of the Park (DPaW, DoF)(H-KMS)	Research	In 2014 a dedicated Kimberley Marine Science Staff member was employed at Parks and Wildlife. A research priorities plan has been developed in collaboration with District staff. Some setbacks are foreseen with the implementation of the plan due to the remoteness of the park and lack of dedicated research funding.
Develop and progressively implement an integrated and prioritised ecological and social monitoring program for the Park, with a particular emphasis on MPRA and DPaW audit requirements (DPaW, DoF, Charter Sector) (H-KMS)	Monitoring	The research and monitoring plan developed in 2014 does not address social values that are KPIs

**Recommendation 2: Social values and strategies to be better integrated and addressed in the ongoing research and monitoring plan for the park.**

#### 4.3 Status of marine park values

**Q3 What is the current status of the ecological and social values in the management plan?**

The KPIs for the Rowley Shoals Marine Park are:

- Water Quality
- Intertidal coral reef communities
- Subtidal coral reef communities
- Invertebrates (excluding corals)
- Finfish

- Seascapes
- Wilderness

Other values(non KPI's) for the Rowley Shoals Marine Park include:

- Geomorphology
- Turtles
- Seabirds
- Cetaceans
- Marine nature-based tourism
- Scientific research
- Scuba diving, snorkelling and water sports
- Recreational Fishing
- Petroleum exploration and production

Data provided from the West Australian Marine Monitoring Program (WAMMP) is used by the District to determine the condition, pressure and trend of the KPIs and other ecological assets for the park. DoF provide data on assets for which they are the lead agency for management. The Western Australian Museum, Australian Institute of Marine Science (AIMS) and CSIRO also visit the Rowley Shoals periodically to research and monitor ecological assets.

The WA Museum visited the Rowley Shoals in October 2014 and undertook an extensive review of all three atolls which make up the Rowley Shoals. Preliminary findings suggest that both Clerke Reef and Imperieuse Reef subtidal and intertidal coral reef communities are in a good condition. Published findings from this study were not available at the time of the periodic assessment, however will be incorporated into annual reviews in years to come.

The Annual Performance Assessment Report 2013-2014 completed by Parks and Wildlife reported that all the KPIs and non-KPIs in the marine park were in a 'good' condition. The pressure on all KPIs and non-KPIs in the marine park was assessed to be at a 'low' level. The management response for all KPIs and non-KPIs in the marine park was assessed as being 'satisfactory' and the management effectiveness rating was assessed as being 'high'.

The status and condition for all ecological and social values (KPIs and Non-KPIs) for the Rowley Shoals Marine Park was provided in the Parks and Wildlife Annual Performance Assessment Report 2013/14 submitted to the MPRA in September 2014. A summary of the report card for 2013/14 is shown in Appendix 2.

Increasing pressure trends were noted for water quality (KPI), turtles and cetaceans, however the current level of pressure remains low.

Since performance assessment reporting has been conducted for the Rowley Shoals Marine Park (2008/2009), the status of marine park values has remained consistent. All values (ecological and social) have shown a good/excellent condition over the past 5 years.

DoF provided status updates on KPIs and key ecological and social values which they have responsibility for (i.e. Finfish, Invertebrates, Recreational Fishing and Commercial Fishing), based on a broad bioregional scale, consistent with DoF's Ecosystem Based Fisheries Management (EBFM) framework. DoF has advised that it does not undertake biological monitoring of invertebrates, or finfish at the marine park scale.

#### 4.3.1 DoF advice – Invertebrates (KPI)

Animals of the Class Anthozoa (corals, anemones, etc.), Class Hydrozoa (jellyfish, etc.) and all molluscs (other than cuttlefish, squid and octopus), are totally protected within the RSMP. Few other invertebrates are targeted by fishers.

#### 4.3.2 DoF advice – Finfish (KPI)

Currently wrasse and cod species are totally protected within the RSMP and cannot be retained. Of the 93 other targeted fish species, most are reported to be released (80-90%).

Based on data gathered between 2008 and 2012, the most popular finfish species retained by fishing tour operators were green jobfish, dogtooth tuna, longnose emperor, flying fish, bluefin trevally, yellowfin tuna and wahoo.

At a wider bioregional scale, the shelf demersal finfish suite is considered to have adequate breeding stock levels and the Spanish mackerel stock is at acceptable levels (catch rates are currently at near record high levels in the Kimberley).

#### 4.3.3 DoF advice – Marine nature based tourism

As part of the 2013/14 MPRA Annual Performance Assessment Report, DoF provided catch and effort analyses of charter fishing at the RSMP over a five year period (2008—2012). This (non-confidential) data was obtained using daily logbook returns from commercial tour operators in 5nm x 5nm fishing blocks. The data was corrected for the capturing of data beyond the area of the marine park by multiplying the proportion of the block that overlaps the park boundary. Results from the data analysis are shown below:

##### **Effort**

There were between 3 and 8 licence holders operating in the RSMP during the 5-yr period. The number of fishing days in each year was between 57 and 81. The number of clients on board increased from about 500 in 2008 and 2009 to over 900 in 2010, 2011 and 2012, while number of fishing lines used remained between 350 and 500.

##### **Catch**

The number of fish kept at the RSMP increased from 157 to 257 between 2008 and 2010, then decreased to 132 in 2012. The majority of the 93 species of fish caught by charter operators in the RSMP were released (80-90%).

##### **Catch Rates**

The catch rate of key species was derived from the total number of fish kept divided by the total number of boat fishing days for each year as recorded in logbooks. Both the total numbers kept and catch rates for each of the most popular species retained by charter fishers (see 4.3.2) exhibited minor variation between 2008 and 2012.

#### 4.3.4 DoF advice – Recreational fishing

Most fishing at the Rowley Shoals is undertaken on charter vessels however some private recreational vessels also visit the marine park.

Records show that fishers primarily target pelagic finfish including mackerel, sailfish, tuna and trevally, in the oceanic waters surrounding the reefs. Recreational fishers also target species such as emperors, trevally and red bass on the outer slope of the reef and in the sheltered lagoons. Much of this activity is catch and release or for consumption on-site.

DoF evaluates the sustainability of recreational fishing activities and management arrangements are reviewed and implemented as appropriate. A Recreational Fishing from Boat Licence (RFBL) was introduced in March 2010. The RFBL database is critical to enabling DoF to undertake integrated surveys of recreational fishing activity across the State. Unfortunately, because of low sample sizes, the iSurvey is not useful in providing estimates of recreational fishing catch and effort at the Rowley Shoals.

In February 2013 DoF introduced new recreational fishing rules to reduce complexity around the state. More information can be found on the DoF website at <http://www.fish.wa.gov.au/Fishing-and-Aquaculture/Recreational-Fishing/Recreational-Fishing-Rules/Pages/default.aspx>.

#### 4.4 Concerning trends in ecological assets

##### ***Q4 Are there any concerning trends in any of the ecological assets (condition-pressure-response)***

There are no concerns with the health and condition of ecological assets within the park. All KPIs and non-KPIs are in a good or excellent condition. However there is increasing pressures on a number of assets including; water quality, cetaceans and turtles. Overall the threat to the ecological assets at the Rowley Shoals remains low.

DoF indicate that there are no concerning trends in ecological assets for which they have responsibility. In the Rowley Shoals, many target species of invertebrates and fish are fully protected. Of the species which are not fully protected, data shows an 80-90% release rate of fish caught recreationally.

Contrary to advice from one commercial tour operator, DoF noted that there is no data to suggest a decrease in pelagic fish stock outside the reef lagoons other than normal seasonal and migratory variations.

#### 4.5 Management targets

##### ***Q5 Are there any assets for which the management targets are not being met – especially those that are key performance indicators (KPIs)?***

Parks and Wildlife report that all assets (KPI and non-KPI) are meeting the targets set out in the management plan. DoF advises that invertebrates (excluding coral) and finfish are both KPIs for which DoF are responsible, however they do not receive specific government funding to monitor management targets for either within the marine park.

#### 4.6 Management responses

##### ***Q6 Are management responses appropriate to the concerns in (Q4.4 or Q4.5), is adaptive management occurring? Is Parks and Wildlife management of these assets effective and efficient?***

Pressures on the marine park values overall are low, however pressures on some individual assets (water quality, turtles and cetaceans) show an increasing trend.

Increased number of visitors poses a threat to the marine park values. Improved access increases the potential for boat strikes on turtles and harassment of turtles and cetaceans from vessels. There is also a threat of increased pollution and hydrocarbon spills from vessels. Parks and Wildlife have demonstrated good management responses through

management activities such as the mooring booking database and increased aerial surveillance of the park. Increased presence at the marine park would be beneficial.

#### **4.6.1 Impacts from climate change**

Impacts from climate change, including an increase in water temperature, is a significant pressure acting on the Rowley Shoals Marine Park. At present, the Rowley Shoals is one of the only areas of tropical reef systems which are relatively untouched by coral bleaching and the crown of thorns starfish. Managing for climate change is an ongoing challenge for Parks and Wildlife however should be considered in planning for the future of this asset.

***Recommendation 3: Parks and Wildlife consider and implement adaptive management strategies to assist in mitigating the impacts of climate change on coral reef communities.***

#### **4.7 Concerning trends in social and cultural targets**

***Q7 Are there any significant concerns in regards to achieving social and cultural outcomes identified in the management plan?***

##### **4.7.1 Seascapes and wilderness**

Defining the KPI assets of 'seascapes' and 'wilderness' is a challenge. Seascapes and wilderness are KPIs that have associated management strategies that have not been implemented or completed.

The main issues relevant to this are that a) there is currently no mechanism to measure seascapes and wilderness b) this leads to a lack of quantitative data to assess the KPI value and c) the pressures are well known but unquantified. Parks and Wildlife are currently working on developing a method to measure and report on seascapes and wilderness.

***Recommendation 4: Parks and Wildlife determine methods for measuring seascape value and undertake a quantitative assessment of the condition of this value for the marine park***

##### **4.7.2 Marine nature based tourism**

Social targets relating to recreational fishing and marine nature based tourism are currently largely being met despite lack of specific funding from DoF and access issues to the park respectively.

##### **4.7.3 Visitor risk management**

Access to the park is an issue for Parks and Wildlife and impacts on the ability to respond to and monitor marine events, incidents or emergencies within the marine park. For example, in late August 2013, box jellyfish were reported within Clerke Lagoon. This was the first reported sighting of box jellyfish within the marine park, and occurred at the start of the peak visitation season. This represented a significant potential VRM risk and had implications for a range of social values which form a quintessential part of the marine park experience. Jellyfish were again sighted in Clerke Lagoon in August 2014.

***Recommendation 5: Opportunities for mooring upgrades and possible additional moorings to be investigated where appropriate.***

#### 4.7.4 Education

Brochures are an effective way of summarising key marine park information including zoning, ecological and social values and management strategies in a format which is easily interpreted by marine park users. A new brochure with up to date information and reference material has been designed however Parks and Wildlife are awaiting CALM Act legislative amendments to be passed before it can be finalised.

***Recommendation 6: New Rowley Shoals Marine Park brochure should be printed as soon as relevant legislation has been implemented***

#### 4.7.5 Proposal for catch and consume of coral trout (*Plectropomus spp*)

In 2013, a Rowley Shoals charter operator lodged a formal proposal to remove species-specific recreational fishing restrictions on coral trout within the Rowley Shoals Marine Park. Recfishwest have approached DoF with the proposal sighting citing support from 3 charter operators that use the area.

The management plan notes that protection should be provided for species within this genus for a number of reasons. *Plectropomus spp.* are generally long-lived, slow-growing, late maturing, form semi resident populations, are vulnerable to localised depletion due to their life history and are highly targeted by recreational fishers. These species are also protogynous hermaphrodites (born female and become male), which do not undergo their sex change until around 500mm. Discussions with Parks and Wildlife and DoF suggest that this species has highly localised recruitment within the Rowley Shoals and therefore is a distinct population, making it vulnerable to overfishing.

Along with biological characteristics causing the species to be vulnerable, there is also considerable value in this species for the SCUBA diving and snorkelling values of the Rowley Shoals. The value of this species for nature-based tourism must be taken into account in considering and review of fishing regulation.

Baseline data on the effects of recreational fishing on lagoonal species should also be prioritised and resourced. Management of vulnerable reef fish species is important to maintain key ecological and social values of the park. Research on recreational fishing should consider post-catch mortality of *Plectropomus spp.*

It is imperative that a scientifically informed perspective is advocated in a consolidated manner through collaboration between Parks and Wildlife (including the District, Marine Science Program and Planning Branch) and with DoF in order to progress the matter.

Robust and targeted research would be required into the characteristics of the coral trout population at the Rowley Shoals before any extraction would be supported. In addition, a comprehensive monitoring program would need to be developed. Sampling design, frequency, spatial extent, evaluation and reporting techniques would need to be re-assessed and intensified so that any effects of fishing could inform managers of the impact of the activity. Additional funding would be required for this research and monitoring to be undertaken.

***Recommendation 7: Research should be conducted on the population and other characteristics of Plectropomus spp. at the Rowley Shoals before any changes are made to fishing regulations.***



**Recommendation 8: A comprehensive survey should be conducted seeking the opinions of all charter operators to the Rowley Shoals before any changes are made to fishing regulations.**

**Recommendation 9: A study of recreational fishing effects including post-catch mortality of *Plectropomus spp.* should be conducted before any changes are made to fishing regulations.**

#### 4.7.6 Commercial and recreational fishing

All recreational fishing is currently permitted in recreation zones, which is inconsistent with the marine park management plan. The section 62 CALM Act notice requires amending to explicitly declare those recreational activities set out in the management plan to be incompatible with the recreational purpose of the zone, before the fishing restrictions can be re-instated. The required amendments to fisheries legislation will be progressed following finalisation of the broader CALM Act amendments and subsequent amendment of the section 62 CALM Act notice.

#### 4.8 Addressing management issues

**Q8 Are there any major issues that are not being adequately addressed?**

Major management issues for the Rowley Shoals Marine Park centre on a lack of resourcing and ability to access the park. Those responsible for managing the park are however making progress towards alternative methods for demonstrating a presence at the park. Parks and Wildlife are working with Coastwatch/Border Protection to task aerial surveillance over the Rowley Shoals should continue. Investigations into using spare berths on charter vessels should be considered. See section 5.2 *Adaptive management*.

**Recommendation 10: Investigate utilising spare berths on charter operator's vessels for departmental staff to access the marine park**

#### 4.9 Recommendations

**Q9 Are there any changes in management focus/effort required to deliver the expectations of the management plan and its outcomes? What recommendations are made?**

As a result of the assessment review process the MPRA have made a number of recommendations below.

Recommendation	
1	<b><i>Priority is given to implementing relevant management strategies that have not yet been completed.</i></b>
2	<b><i>Social values and strategies should be better integrated and addressed in the ongoing research plan for the park.</i></b>
3	<b><i>Parks and Wildlife consider and implement strategies to assist in mitigating the impacts of climate change on coral reef communities.</i></b>
4	<b><i>Parks and Wildlife determine methods for measuring seascape value and undertake a quantitative assessment of the condition of this value for the marine park.</i></b>
5	<b><i>Opportunities for mooring upgrades and possible additional moorings to be investigated where appropriate.</i></b>
6	<b><i>A new marine parks brochure should be printed as soon as relevant legislation has</i></b>

Recommendation	
	<i>been implemented.</i>
7	<i>Research should be conducted on the population and other characteristics of Plectropomus spp. at the Rowley Shoals before any changes are made to fishing regulations.</i>
8	<i>A comprehensive survey should be conducted seeking the opinions of all charter operators to the Rowley Shoals before any changes are made to fishing regulations.</i>
9	<i>A study of recreational fishing effects including post-catch mortality of Plectropomus spp. should be conducted before any changes are made to fishing regulations.</i>
10	<i>Investigate utilising spare berths on charter operators vessels for departmental staff to access the marine park</i>

## 5. Achievements

This periodic assessment, as well as the MPRA Annual Performance Assessment Reports for the last 5 years, has highlighted a number of achievements since the inception of the management plan. These are detailed below:

- By licencing all commercial tour operators and issuing permits for flora and fauna research and monitoring in the marine park, current and proposed activities have not adversely impacted the ecological or social values of the Rowley Shoals.
- Introduction, maintenance and improvement of information systems and databases (mooring booking system and log book archive) accurately reflect visitation and human use in the park.
- Annual inspections of moorings by qualified professionals ensure that moorings are safe for public use.
- Ongoing marine education programs are implemented in collaboration with partner agencies and commercial operators to ensure park users are aware of and understand the values of the marine park.
- A Rowley Shoals Management Advisory Committee in the form of ongoing liaison between Parks & Wildlife District staff and licensed Marine Commercial Tour Operators maintains and facilitates community input into the ongoing management of the park.
- Procedures have been implemented to ensure coordination between government agencies regarding surveillance and enforcement.
- Collaborative Operational Plans (COPs) for the park between Parks and Wildlife and DoF are reviewed and agreed to annually.
- A field compliance program is implemented. Targeted compliance of charter operator's license conditions, visitation guidelines and fishing regulations is ongoing.

### 5.1 Parks and Wildlife/DoF collaboration

Parks and Wildlife and DoF have significant responsibilities in protecting and managing 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 Parks and Wildlife and DoF are outlined in an agreed MOU. 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.

In accordance with the '*Guidelines for Collaborative Management of Marine Reserves*', Parks and Wildlife and DoF prepare a joint report against the Collaborative Operational Plan for marine parks in WA for the Directors General of both agencies. This report is prepared annually and includes an assessment of the effectiveness of the collaborative strategies developed and implemented during the year under each of the four key operational areas:

- 1) Education, Interpretation and Public Participation;
- 2) Patrol and Enforcement;
- 3) Research; and
- 4) Monitoring.

## 5.2 Adaptive management

The Rowley Shoals Marine Park lies approximately 300km off the Western Australian coast. The locality of the park poses a barrier to effective on-ground management for both key agencies. Despite the tyranny of distance, Parks and Wildlife and DoF are successfully utilising alternative methods for surveillance and education. The use of Coastwatch/Border Protection services ensures that a presence in the park is maintained regularly. This relationship has proved to be effective and efficient. Coupled with the moorings booking database, vessels identified by a surveillance flight can be cross referenced during the flight and any vessels which are not on the bookings system can be followed up by Parks and Wildlife staff from Broome. This does not remove the need for on ground presence however it is an example of successful alternative management options.

Since the 2009/2010 financial year Parks and Wildlife have had 1 FTE dedicated to the implementation of the marine park management plan. The Broome district has worked hard to build a positive relationship with government and non-government stakeholders. This has resulted in a positive shift in public perception and community stewardship of the marine park. Commercial operators are showing an increased awareness of the value of the park and a willingness to participate in marine park reviews.

## Appendix 1 List of stakeholders for the Rowley Shoals periodic assessment

Table 5 List of stakeholders contacted for input into the periodic assessment of the Rowley Shoals Marine Park. Stakeholders who provided a response, either verbally or written, are shown with a 'Y' in the response received column.

Stakeholder Group	Response Received	Organisation
Oil and Gas	N	Australian Petroleum Production and Exploration Association
	N	Woodside Energy Ltd
	Y	NOPSEMA
NGOs	N	Conservation Council
	N	WWF
	N	Save the Kimberley
	N	Environs Kimberley
	N	Roebuck Bay Working Group
	N	Australian Marine Conservation Society
	Y	Global Flyway Network
	Y	WAFIC
Fishing	Y	Recfishwest
	N	Broome Fishing Club
	N	Kimberley Professional Fishermen's Association
	N	Broome Shire
Government	N	Broome Chamber of Commerce and Industry
	N	Department of Transport
	N	Australian Maritime Safety Authority
	N	Bureau of Meteorology
	Y	Department of Water
	Y	Department of Parks and Wildlife
	Y	Department of Fisheries
	N	Western Australian Maritime Museum
	Y	Department of Lands
	N	Department of Regional Development
	N	Department of Environmental Regulation
	Y	Department of Mines and Petroleum
	N	NW Water Police (PV Delphinus)
	N	Landgate
	N	Water Corporation
	Y	Tourism WA
	Y	Environmental Protection Authority
Y	Department of Aquatic Zoology, WA Museum	
Science Institutes	N	Department of Planning
	N	Department of Environment
	N	Australian Customs and Border Protection Service
	N	Australian Quarantine Inspection Services
	N	Australia's North West
	N	Broome Visitors Centre
	N	Australian Institute of Marine Science
	N	CSIRO Marine and Atmospheric Research
	N	UWA Oceans Institute
	N	Environmental and Conservation Sciences
N	Centre for Marine Science and Technology	
N	Reef Life Survey	

<b>Stakeholder Group</b>	<b>Response Received</b>	<b>Organisation</b>
	N	Australian Institute of Marine Science
Charter Operators	Y	Reel Teaser Fishing Adventures
	Y	Kimberley Marine Tourism Association
	Y	The Great Escape Charter Co
	N	Kimberley Expeditions (Odyssey Vessel Management Pty Ltd)
	N	Sealife Charters Pty Ltd
	Y	North Star Cruises Pty Ltd
	N	Kimberley Quest (Topchan Pty Ltd)
	N	Odyssey Expeditions (Regalpoint Pty Ltd)
	N	Lindblad Expeditions Pty Ltd
	N	Catalina Airlines Pty Ltd
	N	Lady M Cruising (Master Fisheries, M.A.R.C Pty Ltd)
	N	Eco Abrolhos Accommodation Pty Ltd
	N	C/O Reef Eco Tours
	N	Pacific Marine Group
	N	Fremantle Cruising Yacht Club Inc
Y	Kimberley Coast Cruising Yacht Club	

## Appendix 2 Summary of report cards

Table 6 Status of KPIs in the Rowley Shoals Marine Park Management Plan in 2013-2014

Asset/KPI	Status of KPIs			Effectiveness Rating	
	Condition	Pressure (TREND)	Response		
Water Quality	EXCELLENT	LOW (INCREASING)	SATISFACTORY	HIGH	
Coral Reef Communities	Intertidal	GOOD	LOW (CONSTANT)	SATISFACTORY (long term monitoring by AIMS in 13-14FY)	HIGH
	Sub-tidal	GOOD	LOW (CONSTANT)		HIGH
Finfish	Targeted	GOOD	LOW (CONSTANT)	SATISFACTORY	HIGH
	Non targeted	GOOD	LOW (CONSTANT)	SATISFACTORY	HIGH
Invertebrates (excl. corals)	GOOD	LOW	SATISFACTORY	HIGH	
Seascapes	GOOD	LOW (CONSTANT)	SATISFACTORY	HIGH	
Wilderness					

Table 7 Status of non-KPIs in the Rowley Shoals Marine Park Management Plan in 2013-2014

Asset/non-KPI	Status of non-KPIs			Effectiveness Rating
	Condition	Pressure (TREND)	Response	
Geomorphology	GOOD	LOW (CONSTANT)	SATISFACTORY	HIGH
Turtles	GOOD	LOW (INCREASING)	SATISFACTORY	HIGH
Seabirds	GOOD	LOW (DECREASING)	SATISFACTORY	HIGH
Cetaceans	GOOD	LOW (INCREASING)	SATISFACTORY	HIGH

### Decision Rules for Management Effectiveness

The decision rules used to assess the overall status of each of the Key Values is provided below. There are a number of qualifiers that need to be noted;

1. Older management plans have less well defined targets that are inferred with reference to newer style management plans;
2. Condition could be influenced by pressures out of DPaW control and beyond the requirement of management plan targets;
3. The theoretical understanding of the condition, pressures and response is correct;
4. Response is unsatisfactory when either theoretical understanding or operational activity is in-sufficiently serviced;
5. Ideally only quantitative information would inform this process. In the initial years for the WAMMP, qualitative information will also be used to inform these assessments ; and
6. Thresholds for changes between levels described here are currently being further defined through the collection of long-term datasets and the retrieval of historical data. This refinement process is likely to be on-going for the WAMMP as we gain better understanding of local and State-wide asset responses.

Detailed assessment of each asset or value is provided in the individual report cards within in the park specific MPRA Annual Assessment. These clarify the level of qualitative and quantitative data, and assessment confidence used to make these assessments.

Table 8 Management effectiveness decision matrix used in the Annual Performance Assessment Report for the Rowley Shoals Marine Park Management Plan 2013-2014

	Condition	Pressure	Response <sup>1</sup>
High Effectiveness	Excellent, Good or Satisfactory	Low, moderate or high	Good or satisfactory
Medium Effectiveness	Satisfactory OR	Low, moderate or high	Unsatisfactory
	Unsatisfactory	Low, moderate or high	Good or satisfactory
Low Effectiveness	Unsatisfactory, or poor	Low, moderate or high	Unsatisfactory

## Appendix 3 Summary of stakeholder feedback

Table 9 List of concerns highlighted during stakeholder consultation on the Rowley Shoals Periodic Assessment

Concerns from stakeholders
Not enough anchoring/mooring facilities at better known dive sites
No areas to anchor makes some diving activities unnecessarily dangerous
Disappointed that the 'strop' has been removed from the Cod Hole (Mermaid Reef)
Increasing number of research star pickets either disused or abandoned
Inconsistent compliance approach by government organisations
Increased access by larger boats and seaplanes will ruin the wilderness amenity of the site
Increase in oil and gas operations in the area may impact on the visual amenity of the area
A decline in pelagic fish noticed within the marine park outside of lagoon areas
Decreased number of nudibranchs observed compared to 10 years ago
Climate change
Overfishing
Lack of consultation in the planning process resulting in fishing in key diving areas and diving in key fishing areas
Greater fishing effort involving pelagic species and as a result, a decline in underwater interactions with pelagic species.
Management plan does not reflect on risks from offshore petroleum activities in Commonwealth waters, just State managed waters
Insufficient data for 4 of the 6 values in the park (including 2 KPIs) which are monitored. This is insufficient to inform management of the marine park.
Due to the Rowley Shoals small size, remote location, ecological processes surrounding larval supply and fish recruitment at are not clearly understood.

Table 10 List of suggestions offered by stakeholders during consultation on the Rowley Shoals Periodic Assessment

Suggestions from stakeholders
Installation of more mooring facilities, 'strops' or allow tenders to anchor on sand patches to minimise danger to divers and underwater noise from outboards
Allow <i>Plectropomus</i> spp to be taken for immediate consumption only (no take home)
Management plan be amended to reflect the FRM Act 2011 amendments which allow for commercial fishing in general use zones.
Allow access to the beach at Bedwell Island to participate in an evening beach fire contained in a 44 gallon drum.

<b>Suggestions from stakeholders</b>
For future reviews, include an indication of what has been achieved in accordance with the identified reporting frameworks to provide a basis for feedback.
When replacing moorings located on the boundary of sanctuary and general use zones, position them so that there is no question that passengers can fish from the vessel in the appropriate zone. Specifically the northern mooring at Clerke and western mooring at Imperieuse.
Examine the effectiveness of the management plan for maintaining contemporary awareness of environmental risk from offshore petroleum activities and ensure arrangements are in place, that are appropriate for the risks.
Update the management plan with current regulatory regimes for the offshore petroleum industry.
Align values, objectives and targets for management between agencies to provide clarity and consistency to industry on the State's project expectations – from the approvals stage through to the de-commissioning of projects.
Develop Parks and Wildlife's capacity to sustain long-term monitoring and undertake research to address key knowledge gaps