Western Australian
Auditor General's Report

Management of Marine Parks and Reserves

Report 14: June 2016

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WESTERN AUSTRALIAN AUDITOR GENERAL'S REPORT

Management of Marine Parks and Reserves

Report 14
June 2016

THE PRESIDENT
LEGISLATIVE COUNCIL

THE SPEAKER
LEGISLATIVE ASSEMBLY

MANAGEMENT OF MARINE PARKS AND RESERVES

This report has been prepared for submission to Parliament under the provisions of section 25 of the *Auditor General Act 200*6.

Performance audits are an integral part of the overall audit program. The audits seek to provide Parliament with assessments of the effectiveness and efficiency of public sector programs and activities, and identify opportunities for improved performance.

This audit provides an assessment of how effectively marine parks and reserves, established under the *Conservation and Land Management Act 1984,* are managed and protect the marine environment.

I wish to acknowledge the cooperation of the staff at the Department of Parks and Wildlife, the Conservation and Parks Commission and the Department of Fisheries.

COLIN MURPHY
AUDITOR GENERAL
30 June 2016

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Auditor General's overview

Western Australia has a remarkable and spectacular coastline and marine environments that support an incredible range of biodiversity and are an important part of our heritage.

But these areas of natural beauty are also places that we like to use for recreation and contain resources that we want to exploit. As a result, our marine environment can be a place of competition and contest, and successfully protecting and conserving that environment depends on balance and compromise.

A key strategy to achieving that balance and compromise is a network of marine parks and reserves. Government has established 16 marine parks and reserves covering about 2.5 million hectares or nearly 20% of WA's coastal waters.

WA's regulatory agencies have a difficult task of managing and protecting the marine parks and reserves. Climate change and a growing population are increasing pressures on the marine environment. At the same time, the marine park network is expanding which increases the monitoring and regulatory activities the agencies need to undertake.

The agencies are largely keeping up, but cannot do everything they plan to do. While this may not present an immediate risk to the health of the parks, it will if it persists. Flexibility in matching resources to risk, and a focus on outcomes, will be key in keeping up with the growing network and increasing pressures.

Executive summary

Introduction

This audit assessed how effectively marine parks and reserves (MPRs), established under the *Conservation and Land Management Act 1984* (CALM Act), are managed and protect the marine environment. We focused on the establishment and management of MPRs by the Department of Parks and Wildlife (DPaW). We also examined the role of the Department of Fisheries (DoF) who also deliver management activities in MPRs.

Background

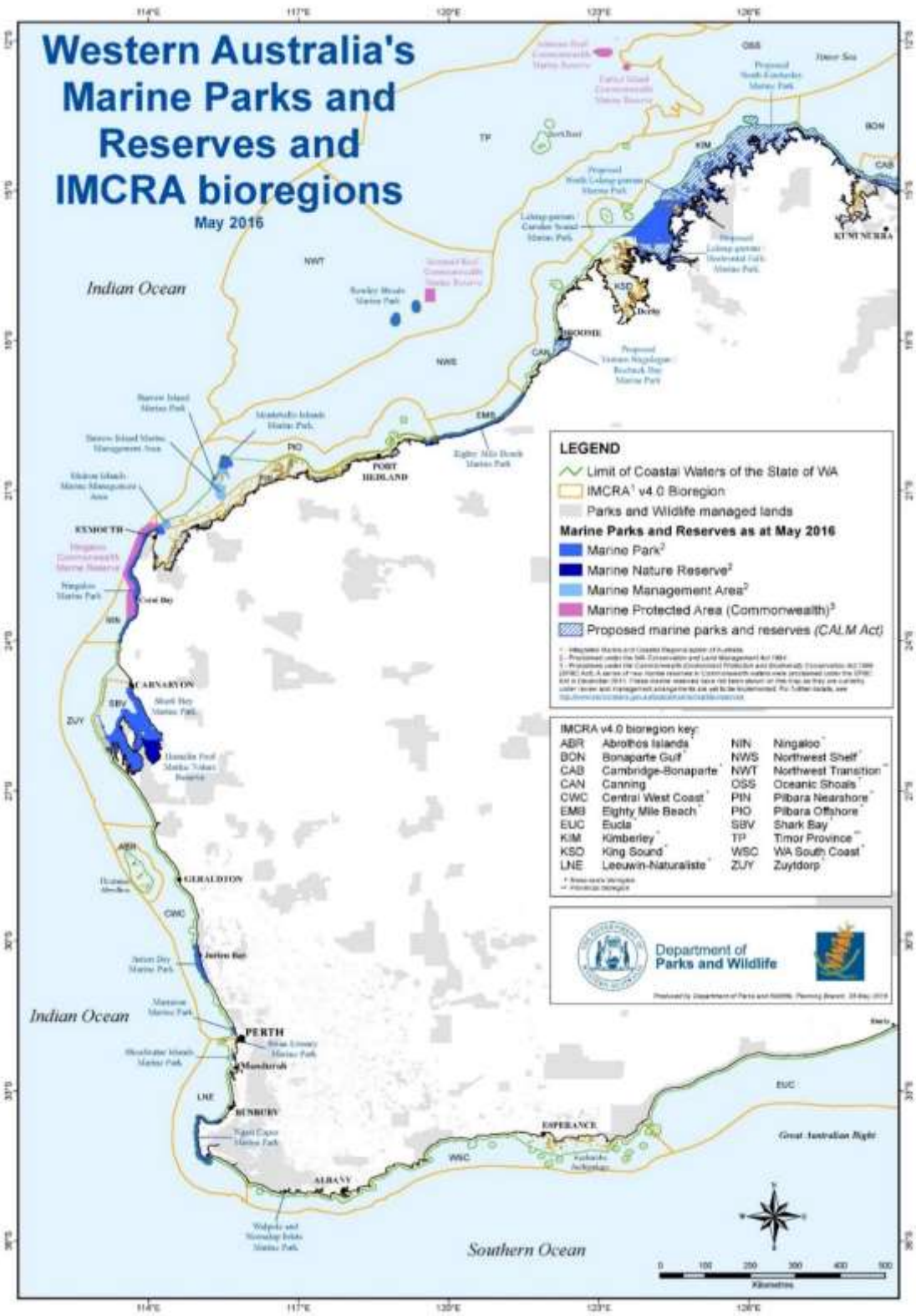
The Western Australian (WA) coastline spans over 12,500 kilometres and has some of the most unique and biodiverse marine environments in the world. This includes the renowned Kimberley coast in the north, the world heritage areas of Ningaloo Reef and Shark Bay on the Gascoyne coast, the South West Capes and the southern coastline into the Great Australian Bight. Just over 90% of Western Australians live within 50 kilometres of the coast and our coastal areas support a diverse and sometimes competing range of recreational and commercial activities.

Since the introduction of the CALM Act, 16 MPRs have been established covering about 2.5 million hectares or nearly 20% of WA's coastal waters:

- 13 marine parks to provide for the conservation and restoration of the natural environment, the protection of indigenous flora and fauna, and preservation of features of archaeological, historic or scientific interest. Marine parks also provide for recreational and commercial use where these activities do not compromise conservation values
- 1 marine nature reserve for conservation and scientific research. Although low-impact tourism may be permitted, no recreational or commercial fishing, aquaculture, pearling, petroleum drilling or production is allowed in these areas
- 2 marine management areas that manage and protect the marine environment so that it may be used for conservation, recreational, scientific and commercial purposes.

MPRs in WA state waters start at the coast and extend 5.5 kilometres from shore. In 2014-15 DPaW and DoF spent around $12.8 million on establishing and managing MPRs.

Four new marine parks are planned by the middle of 2017 (Figure 1). These are an outcome of the *Kimberley Science and Conservation Strategy,* and if established, will double the size of the network to more than 5 million hectares. It is also intended that all Kimberley marine parks will have joint management arrangements with traditional owners.



Source: DPaW

Figure 1: Western Australian MPRs (established and proposed)[1]

[1] The Integrated Marine and Coastal Regionalisation of Australia (IMCRA v4.0) is a spatial framework for classifying Australia's marine environment into bioregions that make sense ecologically and are at a scale useful for regional planning. These bioregions are the basis for the development of a National Representative System of Marine Protected Areas (NRSMPA). WA has 19 bioregions, Oceanic Shoals (OSS) is not in state waters.

The New Horizons policy[2] has guided the establishment of MPRs since 1994 and aims to create a comprehensive statewide system of multiple-use MPRs. Amendments to the CALM Act in 1997 gave effect to the policy and established the framework in law.

Strategic objectives have been adopted which balance conservation with recreational, commercial, scientific and educational uses. The establishment of MPRs requires consultation with communities and stakeholders, and concurrence of the Minister for Fisheries, Minister for Mines and Petroleum, and the Minister for Environment. This approach aims to provide a system of MPRs that allows for multiple uses.

Marine parks must be zoned using 1 or more of 4 zone types (general use, special purpose, sanctuary and recreation) to manage usage. Management areas do not have to be zoned and marine nature reserves are no take areas. These arrangements are detailed in individual management plans:

- general use areas cover around 1.5 million hectares (approximately 60%) of the MPR network and allow commercial and recreational fishing and other extractive activities
- special purpose areas cover over 450,000 hectares (approximately 18%) and allow more specific uses that are compatible with a conservation purpose for that area
- no take areas (i.e. marine nature reserves and marine park sanctuary areas) cover about 300,000 hectares of the MPR network and provide the highest protection for marine habitats and wildlife by excluding commercial, recreational fishing and other extractive activities. The area covered by sanctuary areas will increase to about 500,000 hectares (approximately 20%) when the zoning for Eighty Mile Beach, Lalang-garram/Camden Sound and Ngari Capes is in place. Sanctuary areas will then cover about 4% of WA's coastal waters
- recreation areas amount to around 60,000 hectares (approximately 2%) across the MPR network and allow for recreation activities (e.g. boating and recreational fishing). Recreational fishing must be compatible with other recreational purposes for the area. Activities such as commercial fishing, aquaculture, pearling and exploratory drilling are not permitted in these areas.

In 1998 the Commonwealth, State and Territory governments committed to establishing a National Representative System of Marine Protected Areas (NRSMPA) by 2012. The primary goal of the NRSMPA is to establish and effectively manage a comprehensive, adequate and representative system of MPRs:

- a comprehensive system is when all major bioregions have MPRs within them. In WA, 19 major bioregions have been identified in state coastal waters and a comprehensive, adequate and representative system will consist of a network of MPRs throughout the state
- adequate refers to the number, size, configuration, connectivity and level of protection of the MPRs within a bioregion
- MPRs need to be representative of the ecosystems within the bioregions. This means that all species of plants and animals found in WA waters will be represented somewhere in the MPR system.

Once established, 10-year management plans drive strategies and activities in MPRs (there are 12 management plans covering the 16 MPRs). These focus on ecological values (e.g. water quality, coral, finfish) and social values (e.g. seascapes, Aboriginal culture and

[2] Government of Western Australia (1994). New Horizons in Marine Management. Department of Conservation and Land Management, Perth.

heritage, marine nature-based tourism). Selected key values are key performance indicators (KPIs) of management effectiveness.

The Marine Parks and Reserves Authority (MPRA) oversaw the development of policy and management plans for each MPR and assessed implementation. In May 2016 the MPRA merged with the Conservation Commission to become the Conservation and Parks Commission.

DPaW is the lead agency responsible for the establishment and management of MPRs under the CALM Act. DoF is responsible for managing and regulating fishing, pearling and aquaculture in MPRs in accordance with the *Fish Resources Management Act 1994* (FRM Act) and the *Pearling Act 1990*. DoF is also responsible for administering marine reserve compensation processes under the *Fishing and Related Industries Compensation (Marine Reserves) Act 1997*.

Audit conclusion

WA has made good progress towards establishing a representative network of MPRs since 1994. Thirteen out of the 19 marine bioregions in WA will have MPRs once all Kimberley marine parks are established. Although a small number of ecological values are rated as being in an unsatisfactory condition, and there is increasing pressure on the marine environment, the overall health of MPRs is good.

The WA network is not yet comprehensive, adequate and representative as envisaged under the NRSMPA. Six bioregions do not have MPRs. Some MPRs have small sanctuary zones and there is a risk that these do not provide adequate protection for all representative habitats.

WA has a good practice system for managing MPRs based on developing, implementing and reviewing management plans for each. The majority of plans are comprehensive and outcome based, and the assessment process is robust.

There have been gaps in establishing MPRs and in implementing management plans. Additional restrictions on fishing in 6 MPRs and on other uses in another 4 have not been put in place, delaying enhanced protection measures. As the network has grown, DPaW has been unable to implement all key management strategies or monitor all values. Action in response to recommendations from MPRA reviews has in some cases not been timely.

Individually these issues do not present a significant immediate risk to the health of MPRs, but that risk will increase if these issues persist, particularly as the network expands, and pressures on the marine environment increase. To respond effectively, DPaW needs to prioritise funding and resources to emerging risks.

Key findings

Good progress has been made establishing MPRs but the network is not yet complete

WA has established 16 MPRs in 10 of the 19 bioregions identified under its commitment to the NRSMPA. Establishment of MPRs in a further 3 bioregions in the Kimberley is expected by the middle of 2017. Kimberley marine parks will cover about 25% of Kimberley waters, and double the size of the network to about 5 million hectares, about 40% of WA's coastal waters.

WA's network of MPRs is not yet comprehensive, adequate and representative:

- 6 bioregions do not have MPRs. Candidate areas were identified in these bioregions in 1994, but no timeline exists for establishing these MPRs. The south coast bioregion is also under-represented in the network
- MPRA assessments for Jurien Bay (2008), Shark Bay/Hamelin Pool (2010), Marmion (2012), and Shoalwater Islands (2014) have highlighted that sanctuary zones are too small and may not be providing adequate protection, as representative examples of all different habitat types are not included. The MPRA recommended zoning reviews in the assessments, but no timeframes have been set. Similar concerns have been raised in relation to Lalang-garram/Camden Sound. Its management plan recommends a zoning review after 5 years (in 2018).

There have been significant changes which affect the management of MPRs since the New Horizons policy was last updated in 1998. These include, the State committing to the NRSMPA, collaborative management arrangements between DPaW and DoF have improved and the MPRA and its scientific advisory committee no longer exist. DPaW should review New Horizons to ensure it remains a contemporary strategy for establishing and managing MPRs into the future.

Establishing MPRs can take a long time. It involves extensive planning, community and stakeholder consultation, and statutory processes. Negotiations and agreements to balance competing interests understandably take time, but establishment processes that stretch over many years delay the introduction of protection measures. Delays can also undermine community and stakeholder support for MPRs:

- since 1997 the average time taken to plan, establish MPRs and approve management plans is about 6 years
- Lalang-garram/Camden Sound took 4 years while Ngari Capes took 10 years
- Dampier Archipelago Marine Park and Regnard Marine Management Area are yet to be established 16 years after planning started.

Zones in 4 MPRs and fishing restrictions in 6 are yet to be implemented, delaying the full level of protection:

- gazettal of fishing restrictions in Montebello Islands, Barrow Island and Rowley Shoals in 2008 and 2009 were revoked in all but the sanctuary zones in 2011. This was because prohibiting specific types of fishing in recreation and special purpose zones went beyond the power of the CALM Act, and some prohibited fishing activities did not reflect existing fisheries legislation
- problems with the CALM Act also delayed the gazettal of zoning in Ngari Capes, Lalang-garram/Camden Sound and Eighty Mile Beach. Although the management plans were approved in 2013 and 2014, the zoning schemes are not yet in force. This means activities that should be prohibited in zones are still allowed. For example, people can still fish in proposed sanctuary areas
- gazettal of seagrass and wildlife habitat protection zones in the Swan Estuary Marine Park are still to occur despite management plan approval in 2000. DPaW advised that resourcing constraints are the cause for the delay.

CALM Act amendments proclaimed in May 2016 provide the legislative basis for putting the zones and fishing restrictions in place.

Overall MPRs are in a good condition

Annual performance assessment reports in 2014-15 indicated that MPRs are in good condition and generally managed well. About 85% of the 164 ecological and social values had high management effectiveness ratings.

Walpole-Nornalup, Swan Estuary, Lalang-garram/Camden Sound, Rowley Shoals and Ngari Capes had high management effectiveness ratings for all values. Only 8 out of 164 values were in an unsatisfactory condition. Although there were some gaps in data, we found no evidence to dispute DPaW assessments. Performance assessments for each MPR are in Appendix 1.

A good management framework for MPRs is in place

DPaW has developed modern outcome-based management plans for the majority of MPRs. These plans set out objectives, prioritised management strategies, performance measures and targets for the management of ecological and social values in each MPR. This reflects good practice as it enables the assessment of management effectiveness.

There is a robust process for assessing the implementation of management plans. This involves annual, periodic (approximately every 5 years) and 10-year assessments. The MPRA had provided independent advice on the effectiveness of the MPRs in protecting the marine environment.

There is good cooperation between DPaW and DoF which assists the protection, monitoring and delivery of compliance activities within MPRs. This includes a memorandum of understanding between the agencies, an interdepartmental committee and the use of collaborative operational plans.

Both DoF and DPaW conduct patrols in MPRs to ensure compliance with zoning restrictions, permitted uses and other regulations. Both agencies encourage voluntary compliance through education and awareness raising activities. Between 2011-12 and 2014-15 the number of DoF detected offences (infringement warnings/notices and prosecutions) has increased significantly from 501 to 1,079. Ninety-two percent of offences in 2014-15 were in Marmion, Jurien Bay, Ngari Capes, Shoalwater Islands and Ningaloo. Key reasons for the rise in detected offences are increased visitation and a more risk based approach to patrols, although the total number of patrols in Shark Bay/Hamelin Pool, Shoalwater Islands and Ningaloo in particular have declined.

Not all aspects of the management framework have been implemented in all MPRs

Implementing management plans for 16 MPRs is a large and complex task and some management activities have not been implemented. While this does not present a significant immediate risk to the health of MPRs, the risk will increase if these issues persist:

- five of the 12 management plans are more than 10 years old. Although plans remain in force until replaced by new approved management plans, the 3 oldest are not outcome based (Marmion, Shark Bay/Hamelin Pool, Swan Estuary), and the MPRA believed the plans do not adequately address changing pressures and management priorities in these MPRs
- two MPRA assessments of MPRs were overdue and some recommendations from previous assessments have not been actioned in a timely way. Periodic assessments for Montebello/Barrow islands and Walpole-Nornalup are overdue by 3 years and 1 year respectively. Nine of 40 (22%) annual MPRA recommendations are yet to be actioned by DPaW. Two significant recommendations were from 2007-08. These were the

development of new outcome-based plans and zoning reviews for Shark Bay/Hamelin Pool, Jurien Bay and Marmion

- key management strategies are critical for achieving objectives to protect ecological and social values. Ninety-one percent of key management strategies were implemented across all MPRs in 2014-15. The remaining 9% have not commenced
- in 2014-15 DPaW reported that it had insufficient data for 33% of ecological and social values. Over time this can reduce the level of confidence in management effectiveness ratings. Where little or no data is available, staff rely on their observations from patrols to help inform assessments.

DPaW's capacity to prioritise resources to risks across the MPR network is limited. The main constraints are tied funding to a specific MPR and no clear process for prioritising funding and resources across the MPR network. These limit DPaW's responsiveness to changed pressures and conditions and is a longer-term risk as the network and pressures grow.

There is no consistent approach for tracking staff effort and management costs across all MPRs. Tracking these costs would improve DPaW's understanding of resource requirements for existing and new MPRs, and enable the Conservation and Parks Commission to assess the effort made in the implementation of MPR work plans.

Recommendations

The Department of Parks and Wildlife and Department of Fisheries should by December 2016:

1. Arrange gazettal of:
    a. zoning schemes in Ngari Capes, Lalang-garram/Camden Sound, Eighty Mile Beach and Swan Estuary
    b. outstanding fishing restrictions in Ngari Capes, Lalang-garram/Camden Sound, Eighty Mile Beach, Montebello Islands, Barrow Island and Rowley Shoals.

The Department of Parks and Wildlife and Department of Fisheries should by June 2017:

2. Develop a more flexible management model for MPRs that prioritises resources and funding to the most at risk areas, and where there are increasing pressures and management concerns for ecological and social values.
3. Ensure a consistent approach across all MPRs for recording staff time and costs associated with implementing management strategies and managing values.
4. Review monitoring and research programs to ensure:
    a. resources and funding is directed to priority and at risk ecological values where there is insufficient data and knowledge gaps
    b. performance measures and targets are developed for priority and at risk social values.

The Department of Parks and Wildlife and the Conservation and Parks Commission should by December 2016:

5. Conduct a risk assessment on the currency and adequacy of management plans that have exceeded the 10-year lifespan in order to prioritise the preparation of new management plans.

The Department of Parks and Wildlife and the Conservation and Parks Commission should by June 2017:

6. Review the New Horizons policy to ensure it remains a contemporary strategy for managing MPRs.
7. Publish a report card on the health of all MPRs on a periodic basis.

Agency responses

Department of Parks and Wildlife

The Department of Parks and Wildlife accepts the recommendations in the report and welcomes the findings that Western Australia has made good progress towards establishing a representative network of marine parks and reserves and that the overall health of the parks and reserves is good with no significant immediate risks. The department also welcomes the conclusions that a good practice system is in place, based on a robust planning and assessment process, and that the parks and reserves are managed with a high level of effectiveness.

The Department notes that the New Horizons policy provided the planning framework and mechanisms for establishing marine reserves which has been given effect by law through the Acts Amendment (Marine Reserves) Act 1997. Candidate areas for reservation were identified at the time the policy was prepared and the creation of individual reserves has been progressively achieved, informed by public input and scientific information available at the time. The priorities and rate of progress for the creation of new marine reserves is determined by government policy.

The Department would like to point out that the process for the creation of new marine parks and reserves involves areas with long established uses that involve broad sectors of the community, high community expectations and a range of competing interests. There are enormous complexities in terms of native title, ports, industry development, commercial and recreational fishing, compensation, tourism and other multiple uses that are modified when a park is established and these need to be resolved during a planning process. A key part of this process is proper engagement with the Department's traditional owner partners to develop joint management arrangements for the reserves and the processes required to obtain native title consent for their creation. It also requires an appropriate level of stakeholder consultation to obtain broad community support for management. If not done properly this poses a far greater risk to the long-term conservation of marine parks and reserves than the time taken for planning.

The Department considers that a flexible management model for marine parks and reserves that prioritises resources and funding to the most at risk areas is currently being met by the identification of risk through state-wide monitoring programs. This enables decisions to be made to redistribute resources if and when required and as appropriate in response to an identified threat or emerging issue in an adaptive management framework. However, to date this has not been necessary as there is no significant immediate risk to the health of the parks and reserves.

The findings also note the amalgamation of the Marine Parks and Reserves Authority and Conservation Commission of Western Australia into a new Conservation and Parks Commission. The new Commission will remain a vesting and advisory body, and continue to represent the range of community interests in the State's marine and terrestrial conservation estate. The role and function of the former Marine Parks and Reserves Authority will continue under the new statutory body.

Department of Fisheries

The Department of Fisheries acknowledges the findings of the performance audit, and notes its recognition of our effective collaboration with the Department of Parks and Wildlife in respect of marine parks and reserves.

Importantly the Department of Fisheries' ecosystem based approach to fisheries management affords a level of protection to marine flora/fauna both within, and outside marine parks and reserves, and this is an important component of the State's approach to the protection of Western Australia's unique and diverse marine environment.

We look forward to continuing to work closely with the Department of Parks and Wildlife and relevant stakeholders on future planning and management of the State's marine parks and reserve network.

Conservation and Parks Commission

The Commission welcomes the key finding that good progress has been made in establishing Marine Parks and Reserves (MPRs). It also welcomes the key findings that, overall, MPRs are in good condition and a good management framework is in place. The OAG's recognition of good practice in the development of outcome-based management plans and the finding that the process for periodic assessment of plans is robust are considered by the Commission to be strong affirmations. The key findings support the Commission's aspiration for Western Australia to be considered a benchmark among Australian jurisdictions in its conduct of these activities. Finally, the Commission acknowledges the key finding that not all aspects of the management framework have been implemented in all MPRs.

The Commission accepts the recommendations of the report and will work constructively with the Department of Parks and Wildlife and the Department of Fisheries to implement them.

Two general comments remain to be made about the report. The first is to note that the rate of progress in establishing a network of MPRs across all bioregions in the State is determined by Government priorities and the support of the community. The final designation of an MPR comes about after a gradual process of consultation that seeks to balance community and sectoral concerns. The Commission points to the good progress made over the past decade in the establishment of the MPR network and looks forward to the significant extension that will result from the realisation of the Greater Kimberley Marine Park. Finally, the Commission would like to underscore the effectiveness of employing an adaptive management framework in managing risk. The cycle of annual assessments has served to identify emerging risks, leading to fewer unidentified risks to the assets and values of MPRs.

Audit focus and scope

This audit assessed how effectively MPRs are managed, and protect the marine environment. We had 2 lines of inquiry:

1. Are MPRs planned and established in line with conservation strategies and robust process?
2. Do management actions, monitoring and reporting systems ensure marine biodiversity is protected within MPRs?

Our main focus was on the establishment and management of MPRs by DPaW. We also examined the role of DoF in delivering management activities in MPRs.

The audit included all 16 MPRs in WA established under the CALM Act. It did not include the Rottnest Island Marine Reserve and fish habitat protection areas created under different legislation. In undertaking the audit we:

- reviewed all MPRs management plans, DPaW annual performance assessment reports, all parks summary reports, and biodiversity assets and social values reports
- reviewed collaborative operational plans and reports between DPaW and DoF, DoFs annual report to the MPRA, MPRA annual assessment reports, and periodic and 10-year assessment reports
- examined policies, strategies, planning processes, work plans, patrol and enforcement data
- visited Shoalwater Islands, Ningaloo and Ngari Capes to meet with DPaW and DoF staff, local governments, conservation and fishing groups
- interviewed commercial and recreational fishing stakeholders, environmental groups, and academics
- engaged a subject expert to provide specialist analysis and advice.

Appendix 1 provides information about each MPR.

We did not assess Ministerial decisions regarding marine parks and did not examine joint management arrangements with traditional owners at the new Kimberley marine parks.

This was a broad scope performance audit, conducted under section 18 of the *Auditor General Act 2006* and in accordance with Australian Auditing and Assurance Standards. Performance audits focus primarily on the effective management and operation of agency programs and activities. The approximate cost of tabling this report is $456,000.

Audit findings

Establishment of the MPR network has progressed but it is not yet comprehensive, adequate or representative

Ten out of 19 marine bioregions have MPRs, rising to 13 once the Kimberley marine parks are established

WA has made good progress in establishing a representative network of MPRs. Candidate areas identified in the report of the Marine Parks and Reserves Selection Working Group in 1994 have provided the basis for establishing a representative network of MPRs, in accordance with the National Representative System of Marine Protected Areas (NRSMPA).

There are 16 MPRs covering 10 of 19 marine bioregions[3] within WA coastal waters (Figure 1). Once the Kimberley marine parks are in place, 3 more bioregions (Cambridge-Bonaparte, Bonaparte Gulf and Canning) will have a level of protection. Kimberley marine parks will cover about 25% of Kimberley waters, and double the total size of the MPR network to about 5 million hectares, equivalent to about 40% of WA's coastal waters.

Six bioregions need to be included in the MPR network for it to be comprehensive

A comprehensive network is when all bioregions have MPRs. The Timor Province, North West Shelf, King Sound, Zuytdorp, Abrolhos Islands and Eucla bioregions do not currently have MPRs. Candidate areas within these bioregions have been identified (for example Buccaneer Archipelago and Houtman Abrolhos), but no timeline exists for establishing them. We note that fish habitat protection areas established under the FRM Act provide additional protection in 2 of these bioregions (Zuytdorp and Abrolhos Islands). Two Commonwealth Marine Reserves established under the *Environment Protection and Biodiversity Conservation Act 1999* exist within the Timor Province bioregion.

MPRs have been established based on the need for protection, increasing pressures of use and public interest in expanding the network. Priorities for establishing MPRs are informed by government policy and reflect the political and public sentiment at a particular time.

The south coast bioregion has limited protection within the network, and there are concerns that sanctuary zones sizes may be inadequate in 5 MPRs

For WA's MPR network to be effective, it needs to be representative of all species of plants and animals found in WA waters. As well, individual MPRs need to be of sufficient size and configuration to provide sufficient protection. WA's MPR network does not yet meet these requirements.

The south coast bioregion in particular has limited protection and is under-represented in the network. The south coast has only 1 MPR, the Walpole-Nornalup Inlets Marine Park in the stretch of coast from Northcliffe to the South Australian Border, a distance of approximately 1,500 kilometres. While a number of candidate areas have long been identified including William Bay, West Cape Howe and Recherche Archipelago, the establishment of Kimberley marine parks has been the Government's priority.

[3] WA bioregions are classified from the physical and ecological/biological characteristics of the areas. The Integrated Marine and Coastal Regionalisation for Australia (IMCRA v4.0) provides the national and regional planning framework for developing the NRSMPA, with ecosystems used as the basis for determining representativeness. Under the NRSMPA 1 or more examples of ecosystems within each bioregion should be within an MPR.

In addition to the south coast, concern also exists that the size of 5 of the 16 MPRs are insufficient to afford necessary protection. MPRA assessments of Jurien Bay (2008), Shark Bay/Hamelin Pool (2010), Marmion (2012) and Shoalwater Islands (2014) raised concerns that the sanctuary zones are too small to provide adequate protection and do not include representative examples of all different habitat types.

The MPRA's temporary scientific advisory committee in 2011 also held concerns about the lack of representative habitats placed into zones of high protection in Lalang-garram/Camden Sound. The MPRA believed sanctuary zones would not meet comprehensive, adequate and representative principles. We note that its management plan recommends a zoning review after 5 years (in 2018).

Source: DPaW

Figure 2: Sanctuary zone in Jurien Bay Marine Park

There is a wide range of views on protection targets in MPRs. The International Convention on Biological Diversity calls for protection of all major marine areas, with a target of at least 10% of all habitat types to be conserved in no-take areas (sanctuary zones).

Most conservation planners recommend about 20% of each habitat type within an MPR should be in sanctuary zones. The Ningaloo Marine Park remains the benchmark in WA. It has 34% of its total area in sanctuary zones, including more than 20% of each major habitat. Zoning of marine parks in not a 1 size fits all approach. Each MPR has unique marine wildlife, different habitats, pressures and socio-economic values which affects the level of protection needed. For example, Walpole-Nornalup does not have sanctuary zones.

Reviews of 2 zoning schemes in Ningaloo/Muiron Islands and Rowley Shoals have been undertaken. The MPRA had recommended that 4 other zoning schemes also be reviewed because of increased pressures and human activities. These are Jurien Bay, Shark Bay/Hamelin Pool, Marmion and Shoalwater Islands. Timely reviews using systematic conservation planning can help to achieve a better balance between marine conservation and continued sustainable use.

DPaW advised that zoning is reviewed when it develops new management plans. No timeframes have been set to review any of the existing management plans.

The New Horizons policy no longer provides contemporary guidance

The New Horizons policy provides guidance for establishing and managing MPRs. It contains information about the MPRA and its scientific advisory committee, planning and consultation processes, MPR types and permitted activities, and roles and responsibilities of government agencies. But, there have been significant changes which affect the management of MPRs since New Horizons was last updated in 1998:

- the WA Government commitment to the NRSMPA
- collaborative management arrangements between DPaW and DoF
- CALM Act amendments merged the MPRA and the Conservation Commission and abolished the MPRA's scientific advisory committee
- other jurisdictions have developed new ecological, social, economic and cultural principles based on ANZECC[4] guidelines for implementing the NRSMPA and new approaches to marine conservation planning.

DPaW should seek to update New Horizons to ensure it remains a contemporary strategy for planning and managing MPRs into the future.

Establishing MPRs takes an average of 6 years and delays protection

Establishing MPRs can take a long time. It involves extensive planning, community and stakeholder consultation, and statutory processes (Figure 3). The creation of new MPRs involves areas with long established uses. Negotiations and agreements understandably take time. There are significant complexities in terms of native title, ports, industry development, commercial and recreational fishing, compensation, tourism and other multiple uses that need to be resolved during planning processes. However, establishment processes that stretch over many years delay the introduction of protection measures. Delays may also undermine community and stakeholder support for MPRs.

[4] ANZECC TFMPA (1998a). Guidelines for Establishing the National Representative System of Marine Protected Areas. Australian and New Zealand Environment and Conservation Council, Task Force on Marine Protected Areas. Environment Australia, Canberra.

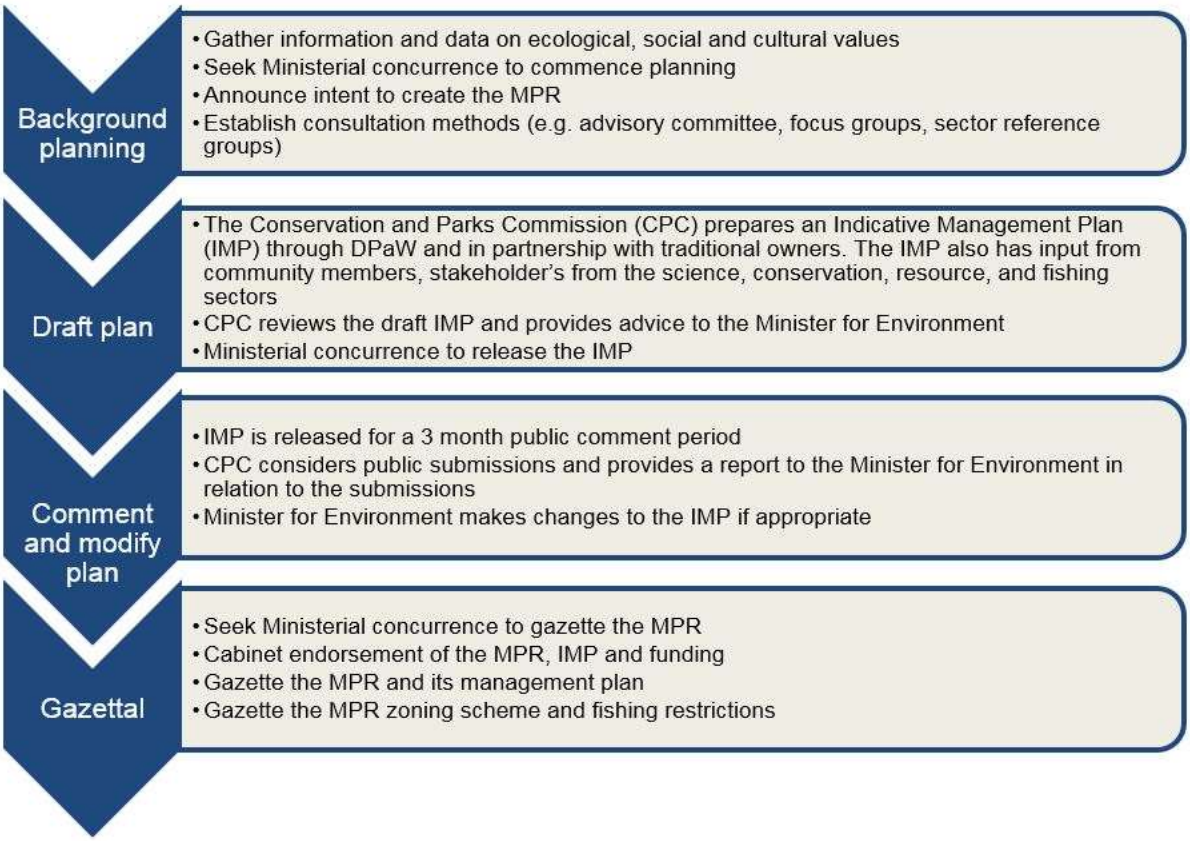


Figure 3: Process for establishing MPRs

Since changes to the CALM Act in 1997, the average time taken to plan and establish MPRs and approve management plans is about 6 years:

- planning for Ngari Capes Marine Park began in 2003, the indicative management plan (IMP) was released in 2006, the park was established in 2012, and its management plan was gazetted in 2013
- the planning process for the Dampier Archipelago Marine Park and Regnard Marine Management Area began in 2000, the IMP was released in 2005, but the 2 are yet to be established
- Kimberley marine parks have had shorter planning and establishment timeframes. For example, it took 4 years to plan and establish Lalang-garram/Camden Sound Marine Park with its approved management plan.

Because planning, consultation, negotiation and obtaining Ministerial concurrence can take a long time, publishing timelines for key stages would increase accountability and enable stakeholders to monitor the status of planned MPRs.

Zones in 4 marine parks and fishing restrictions in 6 MPRs are yet to be implemented delaying the full level of protection

Zoning schemes are often the key strategy for both the conservation of marine biodiversity and the management of human uses in marine parks. As explained on page 7, marine parks use 4 types of zone – general use areas, special purpose areas, sanctuary areas and recreation areas.

Four marine parks are yet to implement zones and 6 MPRs do not have all fishing restrictions in place. Delays in implementing zoning schemes and fishing restrictions reduce the ability to implement management strategies and protect ecological and social values:

- fishing restrictions were gazetted in Montebello Islands Marine Park and Barrow Island Management Area in 2008, and Rowley Shoals Marine Park in 2009, but were revoked in all but sanctuary zones in 2011. This was because prohibiting specific types of fishing in recreation and special purpose zones went beyond the power of the CALM Act, and some prohibited fishing activities did not reflect existing fisheries legislation
- problems with the CALM Act also delayed the gazettal of zoning in Ngari Capes, Lalang-garram/Camden Sound and Eighty Mile Beach. The management plans were approved in 2013 and 2014, but zoning schemes are not yet in place. This means certain activities that should be prohibited in zones are still allowed. For example, people can still fish in areas identified as sanctuary areas.

Although statewide fishing restrictions apply and DPaW and DoF continue to patrol the 6 MPRs, restrictions do not provide the level of protection required by the approved management plans. CALM Act amendments were proclaimed in May 2016 enabling DPaW and DoF to gazette zoning and fishing restrictions. The restrictions are expected to be in place by the end of 2016.

Gazettal of 2 special purpose zones to protect seagrass and wildlife habitats in the Swan Estuary Marine Park is still to occur, 16 years after approval of the management plan in 2000. DPaW advised that resourcing has limited progress on this.

The gazettal of zoning schemes and fishing restrictions in older MPRs was also slow. For example, Shark Bay/Hamelin Pool were established in 1990, the management plan was gazetted in 1997, however zoning schemes and fishing restrictions were not gazetted until 1999 and 2004 respectively.

DPaW and DoF have recently agreed to a 12-month timeframe between gazetting zoning schemes and establishing restrictions under fisheries legislation.

A good management framework is in place but not all aspects are implemented

WA has a good practice system for managing MPRs based on developing, implementing and reviewing management plans. The majority of plans are comprehensive and outcome-based, collaboration between DPaW and DoF is effective and the assessment process is robust.

However, implementing management plans for 16 MPRs is a large and complex task and not all aspects have been implemented. Individually this does not present a significant immediate risk to the health of MPRs, but that risk will increase if these issues persist.

Nine out of 12 management plans are outcome-based

DPaW has developed 9 modern outcome-based management plans. These plans set out objectives, prioritised strategies, performance measures and targets for the management of ecological and social values. This reflects a good practice approach and enables the assessment of management effectiveness.

An example is to maintain high water quality by ensuring no significant impact from nutrient and sediment run-off. Prioritised actions include liaising with relevant authorities and organisations to reduce land and sea based pollutants. The target might be no change from original levels.

Although management plans continue to have effect until replaced by new ones, we found 5 management plans are more than 10 years old. Ningaloo/Muiron Islands and Jurien Bay management plans only exceeded the timeframe in 2015. But the 10-year timeframes were exceeded by Swan Estuary in 2009, Shark Bay/Hamelin Pool in 2006, and Marmion in 2002.

Management plans for Swan Estuary, Shark Bay/Hamelin Pool, and Marmion are also not outcome-based. Although DPaW has attempted to align these plans with newer ones, the MPRA believed that the changes do not adequately address shifting pressures and management priorities within these MPRs.

Key reasons for reviewing and updating older management plans include:

- new or increased pressures or new uses within MPRs can mean current management strategies and funding levels may not be appropriate or relevant for maintaining values
- management practices have advanced since older plans were developed and zoning schemes need to be reviewed to ensure continued protection of values
- modern, outcome-based plans enables implementation and management effectiveness to be more easily assessed.

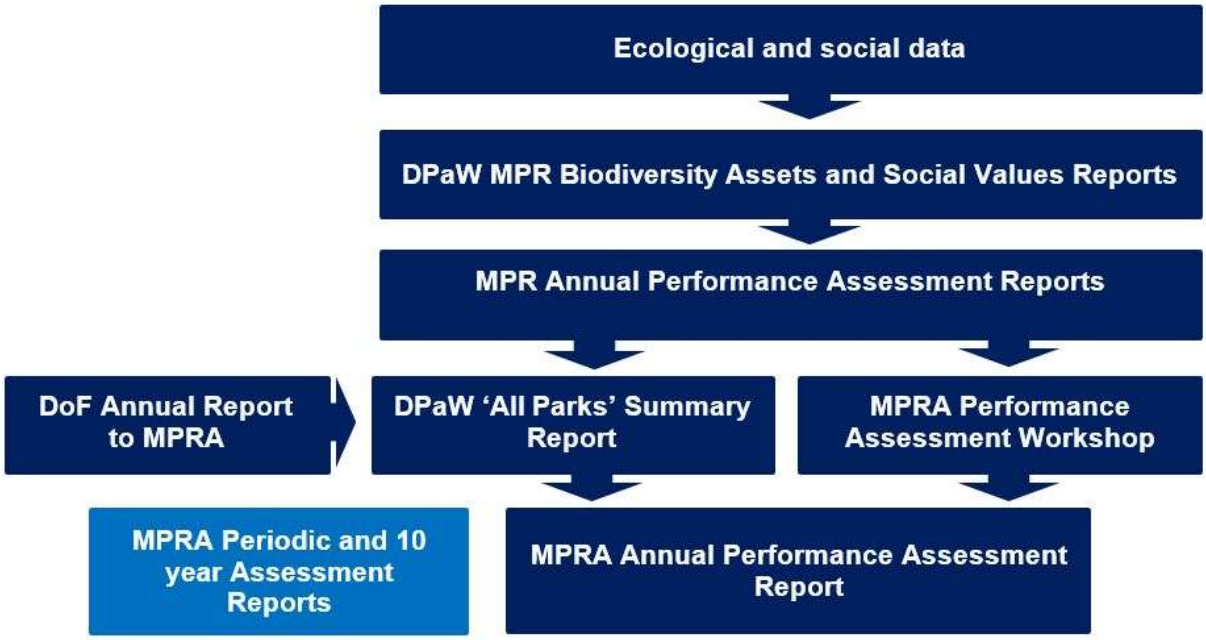
DPaW have advised that it has prioritised the creation of management plans for the new Kimberley marine parks over updating older management plans. A risk assessment on the adequacy of older management plans would help DPaW prioritise its revision. This will become important as 3 other plans (Shoalwater Islands, Montebello/Barrow islands and Rowley Shoals) exceed the 10-year term over the next 3 years.

MPR assessment processes are robust

There is a robust process for assessing the implementation of MPR management plans and the effectiveness of management strategies. The MPRA did provide independent advice on the effectiveness of MPRs in protecting the marine environment. It is expected the Conservation and Parks Commission will now undertake this role.

Key to this has been the MPRA's Audit Policy and Performance Assessment Framework which involved 3 tiers of assessment; annual, periodic (3 to 5 years) and 10-year assessments. An MPRA workshop with regional DPaW and DoF staff had supported the annual assessment process. Assessments review progress in implementing management plan strategies, status of values, and identify concerns and management responses.

Figure 4 shows the data and reports that were prepared as part of the MPRA assessment process. A short summary of the MPRA annual performance assessment report is in its annual report. Periodic and 10-year assessment reports are published on the DPaW website. Although there is a comprehensive reporting process, a publicly available report card would improve transparency on the overall health of the MPR network.



Source: OAG and DPaW

Figure 4: Flowchart of the MPRA's performance assessment process

Periodic and 10-year assessments are important to identify key management issues that need addressing to allow DPaW to effectively manage MPRs. The MPRA had completed 4 periodic assessments covering Ningaloo/Muiron Islands, Jurien Bay, Rowley Shoals and Shoalwater Islands and 3, 10-year assessments covering Marmion, Shark Bay/Hamelin Pool, and Swan Estuary.

Two MPR assessments are overdue and some recommendations from previous assessments have not been actioned in a timely way

The MPRA did not undertake several periodic and 10-year assessments by the required date. Without these assessments, government and the community lacks information about the effectiveness of MPRs in protecting the marine environment.

Periodic assessments for Montebello/Barrow islands and Walpole-Nornalup are 3 years and 1 year overdue respectively. Ten-year assessments for Ningaloo/Muiron Islands and Jurien Bay due in 2015 have not yet started.

Nine of 40 (22%) annual MPRA recommendations are yet to be actioned by DPaW. Two significant recommendations were from 2007-08. These were the development of new outcome-based plans (commencing with Shark Bay/Hamelin Pool) and zoning reviews for Jurien Bay and Marmion. We also did not see an acquittal of recommendations from MPRA periodic and 10-year assessments for Jurien Bay (2008), Shark Bay/Hamelin Pool (2010), Marmion (2012) and Ningaloo/Muiron Islands (2013). Some of these recommendations inform the preparation of future management plans others could be actioned immediately.

DPaW and DoF report progress on implementing MPRA annual, periodic and 10-year assessment recommendations. However, the MPRA's annual performance assessment report made no judgement as to whether the actions taken were adequate.

Ninety-one percent of all key management strategies have been implemented

Key management strategies are critical for achieving objectives to protect ecological and social values. Overall, 91% of key management strategies were implemented across all MPRs in 2014-15. Of these, 62% were complete, 11% substantially complete and 18% partially complete. Nine percent had not commenced.

We recognise that the implementation of strategies can be delayed or not proceed for various reasons. These include a lack of available funding or the need to address emerging issues. However, delaying the implementation of strategies to protect ecological and social values increases risk.

DPaW reported it had insufficient data for 33% of ecological and social values which can over time reduce the level of confidence in effectiveness ratings

There was insufficient data (little or no data) for 55 of 164 values in 2014-15 with ecological values the worst affected. A lack of sufficient data reduces the level of confidence for condition, pressure and management effectiveness ratings (Appendix 1).

For 10 of the 20 key ecological values, the lack of data is because the park is new and there has been insufficient time to build up data. In the absence of data, staff use observations to make assessments. In the short term, this does not present a major concern, but persistent gaps in the data would present a more significant risk.

We reviewed MPR biodiversity and social values reports and found:

- 20 out of 77 key ecological values had insufficient data. Ten were in the 3 newest MPRs; Ngari Capes, Lalang-garram/Camden Sound and Eighty Mile Beach. The other 10 were in Marmion, Swan Estuary, Shark Bay/Hamelin Pool and Walpole-Nornalup. Most of these were in good/satisfactory condition with low/moderate pressures but 1 was in an unsatisfactory condition (Stromatolites and algal mats in Shark Bay/Hamelin Pool)
- 25 other ecological and social values across 7 MPRs had insufficient data. Fourteen of these were in Lalang-garram/Camden Sound and Eighty Mile Beach
- 10 out of 14 key social values across 9 MPRs had insufficient data. These were for seascapes, wilderness and Aboriginal cultural significance values.

Monitoring does not always need to occur annually and in any event, may not be feasible given the large number of values, available resources and remoteness of MPRs.

DPaW has recently developed criteria to assess values, pressures and scientific knowledge to help with identifying research and monitoring priorities. Prioritising at risk values and key values in monitoring programs is a more effective approach with existing funding and resources.

Where little or no data is available, staff rely on their observations from patrols to help inform assessments. This is a standard approach in MPR management. DPaW is aware it needs to collect more time-series data for assessing values, as some are old and carried over from previous years.

There is limited monitoring and reporting on social values (e.g. wilderness, Aboriginal culture and heritage). Most MPRs report on management concerns and the implementation status of relevant management plan strategies, however there is a lack of performance measures and data for social values. Measuring trends in human use, and assessing the impact on ecological values helps the sustainable management of MPRs.

Figure 5 shows examples of gaps in monitoring programs for common ecological and social values.

Water quality

Water quality is a key value in 11 of 12 management plans. Common performance measures are nutrients, toxicants, pathogens and litter.

Analysis of data (2011-12 to 2014-15) collected from water quality monitoring programs found:

- Shoalwater Islands and Swan Estuary carried out annual monitoring from 2001-2014, other monitoring programs were not conducted annually but over different time periods (e.g. Ningaloo/Muiron Islands 1990, 1994, 2000 and 2010) and Jurien Bay (2004 and 2009)
- Ngari Capes, Lalang-garram/Camden Sound, Montebello/Barrow islands and Rowley Shoals do not have data on water quality performance measures. Water temperature is used as a surrogate performance measure in these parks.

Finfish

Finfish is a key value in 11 of 12 management plans. Finfish includes species such as Australian Herring, Whiting, Dhufish and Pink Snapper. Common performance measures are diversity and abundance.

Analysis of data (2011-12 to 2014-15) collected from finfish monitoring programs found some of the data used to assess the condition of finfish species in 2014-15 is not recent, including Shark Bay (2011) and Montebello/Barrow islands (2012). In 2014-15 DPaW reported insufficient data for finfish in Walpole-Nornalup, Eighty Mile Beach and Lalang-garram/Camden Sound, and low confidence in the assessment for Shark Bay.

Social values

MPRs have social values for conservation and management in management plans. The most common values are seascapes (e.g. natural or artificial features that can be above or below the sea, viewed from the sea or shore) nature-based tourism, recreational and commercial fishing, water sports, Aboriginal culture and heritage and scientific research.

Our analysis of 2014-15 annual MPR performance assessment reports found:

- condition-pressure-response and management effectiveness ratings were not reported for about 57 social values in 2014-15. Ngari Capes and Lalang-garram/Camden Sound reported on values but with limited data
- performance measures for monitoring wilderness, Aboriginal culture and heritage, and nature-based tourism are yet to be developed. In 2015 performance measures for seascapes were trialled for the first time in Ningaloo and Shoalwater Islands
- an area of concern for metropolitan MPRs (Shoalwater Islands, Marmion and Swan Estuary) was the lack of data on human usage
- the sustainability of recreational fishing activities was not monitored and assessed by DoF at a MPR scale.

Source: OAG and DPaW

Figure 5: Case examples on water, finfish and social values monitoring programs

DPaW and DoF have established effective collaboration which assists the protection, monitoring and delivery of compliance activities within MPRs

There is good cooperation between DPaW and DoF. The 2 agencies have established effective processes that assist with the protection, monitoring of ecological values and delivery of compliance activities within MPRs.

DPaW and DoF signed a memorandum of understanding in 2013 covering cooperation for MPR management. An interdepartmental committee with executive level representatives also meets to exchange policy advice, and strategic information on matters of common interest, with respect to MPR planning processes.

In June 2014, the interdepartmental committee endorsed guidelines for collaborative management of MPRs. These outline how collaborative operational plans (COPs) are to be developed and any issues reported. COPs focus on the key operational areas of education, patrols and enforcement, research and monitoring for each MPR. Key outcomes have been reported to the Directors General of DPaW and DoF, and to the MPRA.

COPs include budgets, shared management strategies from management plans, and targets. All MPRs, except Swan Estuary Marine Park, have COPs in place. DPaW advised this was because it covers a small area with limited fishing, and there is minimal interaction between DPaW and DoF.

Our analysis of COPs identified examples of good communication, resource sharing, coordination of activities and joint educational presentations. Over time, reporting COPs to the IDC can help improve collaborative management arrangements and identify where to best target available funding and resources.

DPaW and DoF conduct separate and joint patrols in MPRs to ensure compliance with zoning restrictions, permitted uses and other regulations. Both agencies encourage voluntary compliance through education and awareness raising activities. This is the main focus in MPRs without zoning in place (Ngari Capes, Lalang-garram/Camden Sound and Eighty Mile Beach). While DoF has the lead role in enforcement of fisheries restrictions, most DPaW officers are cross-authorised fisheries officers.

Resources, remoteness and the size of MPRs affect patrols and enforcement:

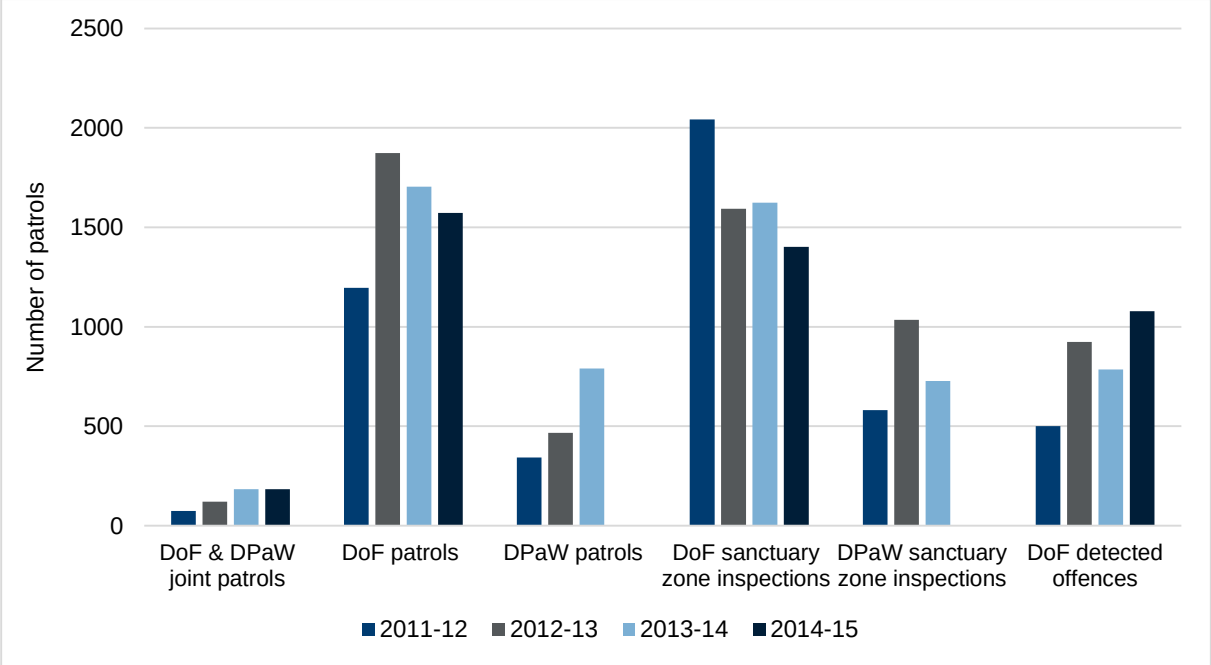
- DoF does not receive funding for patrols and enforcement in Shoalwater, Marmion and Shark Bay/Hamelin Pool. Instead, it undertakes patrols and enforcement in these MPRs on an opportunistic basis as part of statewide compliance activities. DoF does not commit to inspection targets or patrol numbers in MPRs where there is no additional funding
- the number of DoF patrols and sanctuary zone inspections was lower in 2014-15 than previous years. This was due to fewer patrols in Shark Bay/Hamelin Pool, Shoalwater Islands and Ningaloo/Muiron Islands. Ningaloo also had 450 less sanctuary zone inspections than in 2013-14 as DoF has adopted a more risk-based and intelligence driven approach
- Montebello/Barrow islands, Rowley Shoals and Lalang-garram/Camden Sound recorded only a small number of patrols. DPaW advised other government agencies including Customs and Water Police also visit these MPRs, which supports compliance efforts.

We also found that the number of detected offences (infringement warnings/notices and prosecutions) increased significantly from 501 to 1,079 between 2011-12 and 2014-15:

- 92% of the 1,079 offences in 2014-15 were for non-compliance with statewide fishing restrictions (for example Abalone, recreational fishing bag and size limits, Rock Lobster) and fishing in prohibited zones (such as sanctuary areas) in Marmion, Jurien Bay, Ngari

Capes, Shoalwater Islands and Ningaloo/Muiron Islands. Sixty-one offences resulted in prosecutions

- Shoalwater Islands recorded 18 sanctuary zone offences while Marmion had 3 in 2014-15. Other MPRs, such as Ningaloo/Muiron Islands and Jurien Bay did not specifically report on these offences but a large number of offences were in prohibited areas such as sanctuary zones
- key reasons for the rise in detected offences are increased visitation and a more risk based approach to patrols.



Source: DPaW and DoF

Figure 6: MPR patrols conducted and detected offences (2011-15)[5]

Under the COPs, DPaW and DoF aim for consistent data collection for patrols and compliance activities. This includes details of contacts, offences detected and class of offence, and reporting requirements.

DoF has provided an annual report to the MPRA, which includes a summary of compliance and surveillance activities. However, DPaW uses inconsistent methods to report on its patrol activities across MPRs. As well, DPaW does not centrally collect and analyse its data and therefore it cannot assess the effectiveness of its patrols so that it can allocate its resources effectively.

DPaW's capacity to prioritise resources to risks across the MPR network is limited

A significant number of annual performance reports prepared by park staff have cited a lack of resources as a reason for not implementing all aspects of management plans. The main constraints are tied funding and no clear process for prioritising funding and resources across the MPR network. The result is that DPaW's capacity to respond to changing pressures and conditions is limited, particularly as the network and pressures grow.

Individual MPRs have tied funding based on an allocation approved by Cabinet. One existing and 4 proposed MPRs also have Royalties for Regions funding. The tied funding is related

[5] DPaW's 2014-15 patrol data was not available at time of audit.

directly to the implementation of the management plan for that park. Tied funding demonstrates a commitment to the individual MPRs. But, it also means that if there is a need to respond to a changed or emerging risk in an MPR, DPaW has to draw on recurrent funding for other operations. This can limit DPaW's flexibility and responsiveness across its network of MPRs.

DPaW does not have a documented statewide risk assessment and implementation plan that prioritises resources across the MPR network. This is important given DPaW is unlikely to deliver all management strategies and activities in all MPRs.

DoF is also funded to deliver management activities in MPRs but it has no funding in Shark Bay/Hamelin Pool, Shoalwater Islands, Marmion, and Swan Estuary. Therefore, its capacity to support patrols, research and monitoring is limited.

While tied funding ensures resources for each MPR, a flexible management model can help to address emerging risks across the network, and address changing needs of individual MPRs over the life of the management plans.

There is no consistent approach for tracking staff effort and management costs across all MPRs

DPaW does not consistently track resources and costs of implementing management strategies and the management of assets across MPRs.

Staff time and expenditure are 2 measures that are important indicators of management response. Without this information the Conservation and Parks Commission cannot effectively assess the implementation of MPR work plans as part of the annual performance assessment process. It also makes it difficult to accurately predict costs for existing and new MPRs.

We found MPRs use different formats to outline a work plan for each financial year. Some allocate resources and budgets for each management strategy; others do not.

Current financial reporting does not demonstrate the direct costs associated with implementing individual management strategies specified in MPR work plans. Not all MPRs allocate expenditure to the same cost codes, or report on staff time and operational expenditure for managing assets and values. An assessment of management output and work plan achievements is difficult without this level of information.

DPaW's reporting shows MPRs are generally in good condition

MPR annual performance assessment reports in 2014-15 indicated that MPRs are in good condition and generally managed well. Performance assessments for each MPR are in Appendix 1. We found no evidence to dispute DPaW assessments however, gaps in data reduce the level of confidence for some values.

DPaW use long-term monitoring, evaluation and reporting of change to measure the health of MPRs. Annual biodiversity assets and social values reports provide information on the condition of, and pressure on, the values in MPRs. As previously mentioned, ecological values include water quality, coral, and finfish, while social values include seascapes, Aboriginal culture and heritage, and marine nature-based tourism.

MPR staff then use their on-ground knowledge to assess the management response. The combined result – condition-pressure-response determines the management effectiveness rating for each value. Three ratings are used – high (good), medium and low (poor). Together, all the ratings for each value in a MPR enable DPaW and the Conservation and Parks Commission to assess the effectiveness of MPR management.

From 164 ecological and social values reported on by DPaW we found:

- 7 ecological and social values were in an excellent condition, 112 were good, and 37 were in a satisfactory condition. Only 8 values were in an unsatisfactory condition. Details on specific management responses are included in Appendix 1
- 139 ecological and social values had high management effectiveness ratings, 24 had medium ratings while only 1 value had a low management effectiveness rating (wilderness in Ningaloo). Of the 91 key ecological and social values, 76 had high management effectiveness ratings
- Walpole-Nornalup, Swan Estuary, Lalang-garram/Camden Sound, Rowley Shoals and Ngari Capes had high management effectiveness ratings for all the values
- Shoalwater Islands, Ningaloo/Muiron Islands, Jurien Bay, Montebello/Barrow islands, Marmion, Eighty Mile Beach and Shark Bay/Hamelin Pool had values that were managed with medium effectiveness.

Climate change, recreational and commercial fishing, coastal development, mining and exploration, pollution, and increased visitation are key pressures within MPRs. All are currently rated as low/medium for about 88% of values. The MPRs with the lowest level of pressure are those in the north-west, predominantly due to remoteness, though pressures are likely to increase over time.

Listed below are 8 values assessed as in an unsatisfactory condition in 2014-15.

Ecological values in an unsatisfactory condition (2014-15)

Finfish

Shoalwater Islands – The abundance of targeted finfish (e.g. Pink Snapper, Breaksea Cod) was low in underwater cameras in 2012 and 2014. No targeted species were recorded in sanctuary zones.

Marmion – The abundance of targeted fish remain low across inner and mid-shore reef areas.

Little Penguins

Shoalwater Islands – There is a breeding colony decline on Penguin Island. Main pressures are a decrease in local food supply (Whitebait), an increase in temperature, occurrence of feral predators and disturbance from visitors. In response, management is trialling artificial nesting boxes, has extended boardwalks and temporarily closed the Island during breeding periods.

Macroalgal communities

Jurien Bay – Large fleshy algae provides food and shelter for a variety of marine organisms. There has been a loss of macroalgal communities due to high sea temperatures.

Coral

Montebello Islands – Coral cover has decreased on some reefs in Montebello Islands. High sea temperatures have caused coral bleaching while crown-of-thorns starfish are found on some coral reefs.

Ningaloo and Muiron Islands – There was a decline in coral cover in some areas including Bundegi, the eastern side of Muiron Islands and south of Coral Bay.

Microbial communities (e.g. Stromatolites)

Hamelin Pool – There is limited knowledge on the extent and recovery rates from historical damage of these communities. This is made worse by increased pressure from unauthorised coastal access, elevated sea temperature and run-off from degraded catchments.

Seagrass

Shark Bay – Seagrass communities appear to be affected by the 2011 heatwave and floods associated with 2 cyclonic events in that year. While the overall area of seagrass has not changed dramatically, there has been a shift in seagrass cover from dense to sparse across large areas of the bay. The worst affected area appears to be the western gulf where cover and density have declined.

Source: OAG and DPaW

Figure 7: Ecological values in an unsatisfactory condition (2014-15)

Appendix 1

Information on MPRs

The following case studies provide an overview of the 16 MPRs, and the performance assessments and management effectiveness ratings for ecological and social values.

MPR performance assessments 2014-15

- DPaW uses the condition-pressure-response (CPR) model to report on the condition of all values, the pressures on these and the management response to these pressures. We have used the CPR ratings from 2014-15 Annual Performance Assessment Reports.

Legend for CPR assessments of values

Condition[6]	Pressure	Response
Excellent/Good	Low	Good
Satisfactory	Medium	Satisfactory
Unsatisfactory	High	Unsatisfactory

Management effectiveness ratings 2012-13 to 2014-15

- Management effectiveness ratings are from 2012-13 to 2014-15 Annual Performance Assessment Reports.
- CPR assessments are combined to assess the effectiveness of MPR management.

Legend for management effectiveness ratings

Management Effectiveness Assessment	Condition	Pressure	Response
High	Excellent, Good or Satisfactory	Low, Medium or High	Good or Satisfactory
Medium	Satisfactory or	Low, Medium or High	Unsatisfactory
	Unsatisfactory	Low, Medium or High	Good or Satisfactory
Low	Unsatisfactory or Poor	Low, Medium or High	Unsatisfactory

[6] **Excellent** – Management targets met. Data indicates strong trend in desired direction.
Good – Management targets met. Moderately strong trend in desired direction and/or low level of historical pressures are likely to give a low impact on the condition.
Satisfactory – Management targets met. Weak trend in desired direction and/or 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 has a major negative impact on the condition.

Marmion Marine Park

Location	Located 14km North West of Perth between Trigg Island and Burns Rock
Bioregion	Central West Coast
Size	9,500 ha
Planning commenced	1985
Park Gazettal	Water gazetted March – 1987 Name gazetted – September 1987 Class gazetted – September 1990
IMP released	1990
Management plan gazettal	May 1992
CALM Act classified waters notice (zoning)	March 1999
Fish Resources Management Act s43 notices	November 1999
Subsequent notice amendments	FRM Act s43 notices amended May 2005

Zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	3	38	0.4
Recreation	1	Not in plan	
General use	–	Not in plan	

Attractions and features

- Marine park is used extensively for swimming, snorkelling, diving, sailing and fishing.
- Contains diverse habitats including seagrass meadows, subtidal and intertidal macroalgal limestone reefs.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$602,988	$614,235	6 across Shoalwater, Marmion and Swan Estuary
DoF		$13,322	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Water quality	E (KPI)					
Sediment quality	E (KPI)					
Macroalgal communities	E (KPI)					
Seagrass	E (KPI)					
Intertidal reef communities	E (KPI)					
Invertebrate communities	E (KPI)					
Cetaceans (Whales)	E (KPI)					
Pinnipeds (Sea Lions)	E (KPI)					
Geomorphology	E (KPI)					
Seabirds	E (KPI)					Insufficient
Finfish	E (KPI)					

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Water quality			
Sediment quality			
Macroalgal communities			
Seagrass			
Intertidal reef communities			
Invertebrate communities			
Cetaceans (Whales)			
Pinnipeds (Sea Lions)			
Geomorphology			
Seabirds			
Finfish			

Management concerns and responses

Finfish

- Targeted finfish is a concern. Management of targeted finfish has increased from low to medium after more investment in monitoring in 2013-14. In 2014-15 DPaW identified the need to develop cost effective methods for monitoring fishing intensity in the park.

Water quality

- Current water quality monitoring parameters are not sufficient to pick up changes from localised pressures for the last 2 years.

Invertebrate communities

- High water temperature and increased visitation is placing pressure on invertebrate communities in 2014-15. DoF issue licences and restrict harvest times. DPaW advised more data is required from DoF.

Sea Lions

- Observations indicate increased human pressures impacting on Sea Lion haul out and feeding sites. DPaW noted a better understanding of this population was needed to address these issues.

Zoning scheme

- Re-zoning and increased protection may be needed if the proposed Ocean Reef Marina is approved.

Ningaloo Marine Park and Muiron Islands Marine Management Area

Location	North West Cape of WA.
Bioregion	Ningaloo/Pilbara Nearshore/Pilbara Offshore
Size	263,343ha (Ningaloo) 28,616ha (Muiron Islands)
Planning commenced	1985 (plan also reviewed in 2003)
Park Gazettal	Water gazetted – April 1987 Name gazetted – December 1987 Extended – November 2004
IMP released	1998 and 2004
Management plan gazettal	November 1989 January 2005
CALM Act classified waters notice (zoning)	May 1991 January 2005 Amended April 2008
Fish Resources Management Act s43 notices	October 1991 Amended April 1992 Amended May 1994 September 2005

Ningaloo zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	18	88,365	33.56
Special purpose (benthic protection)	1	5,488	2.08
Special purpose (shore based activities)	11	687	0.26
Recreation	7	36,460	13.85
General use	–	132,343	50.25

Muiron zoning scheme	Number	Total area (ha)	% of MPA
Conservation (flora/fauna protection) areas	3	1,929	7
Unzoned area	–	26,687	93

Attractions and features

- World Heritage listed area.
- Ningaloo Reef is the largest fringing reef in Australia.
- In 2014-15 about 180,000 people visited Cape Range National Park, a main access point to Ningaloo Marine Park.
- Popular tourist activities include whale shark tours, boating, fishing, diving and snorkelling.
- Significant revenue for the WA economy, the whale shark industry generates more than $12 million of revenue each year.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$2,509,169	$2,581,341	14
DoF	$500,000	$417,576	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Seascapes	S (KPI)					
Wilderness	S (KPI)					Insufficient
Water quality	E (KPI)					
Finfish	E (KPI)					

Coral reef communities	E (KPI)					
Mangrove communities	E (KPI)					
Coastal biological communities	E (KPI)					
Turtles	E (KPI)					
Geomorphology	E					
Sediment quality	E					
Filter feeding communities (other than coral reefs)	E					
Shoreline intertidal reef communities	E					
Soft sediment communities	E					Insufficient
Macroalgal and seagrass communities	E					
Seabirds, shorebirds and migratory waders	E					
Invertebrates (targeted)	E					
Invertebrates (non-targeted)	E					
Sharks and rays	E					
Whale sharks	E					
Manta rays	E					
Whales and Dolphins	E					
Dugong	E					Insufficient

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Seascapes			
Wilderness			
Water quality			
Finfish			
Coral reef communities			
Mangrove communities			
Coastal biological communities			
Turtles			

Social values not reported on in 2014-15	Management concerns and responses
• Aboriginal heritage • Maritime heritage • Water sports • Marine nature-based tourism • Coastal use • Recreational fishing • Scientific research	**Wilderness** • No current framework for monitoring wilderness and changes in value condition. **Coral** • Decline in coral reef communities due to above average sea temperatures. Management of this is largely beyond the control of DPaW.

• Education • Commercial fishing • Petroleum development	**Coastal biological communities** • Increased pressure on coastal biological communities as a result of more visitors, camp sites and access tracks due to the 2015 coastal exclusion process. DPaW identified that the uncertainty over access for management in many coastal areas needs to be resolved. **Finfish** • Reported declines in recreationally targeted finfish in 2014-15.

Shark Bay Marine Park/Hamelin Pool Marine Nature Reserve

Location	Located 400km North of Geraldton
Bioregion	Shark Bay
Size	748,725ha (Shark Bay Marine Park) 132,000ha (Hamelin Pool Marine Nature Reserve)
Planning commenced	1990
Marine Park Gazettal **Marine Nature Reserve Gazettal**	November 1990 May 1990
IMP released	1994
Management plan gazettal	March 1997
CALM Act classified waters notice (zoning)	January 1999
Fish Resources Management Act s43 notices	March 2004 September 2009

Shark Bay Marine Park zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	8	41,152	5.5
Special purpose (wildlife viewing and protection)	1	456	0.06
Special purpose (seagrass protection)	1	123,384	16.5
Special purpose (dugong protection)	1	27,500	3.7
Special purpose (nursery protection)	1	Not in plan	Not available
Special purpose (habitat protection)	2	26,674	3.6
Recreation	3	493	0.07
General use	-	Not in plan	Not available

Hamelin Pool Marine Nature Reserve zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	1	132,000	100

Attractions and features

- World Heritage listed area.
- Dolphins at Monkey Mia are a major tourist attraction. In 2013-14 approximately 90,000 people visited Monkey Mia to see them.
- Hamelin Pool has 1 of the world's most diverse and abundant communities of Stromatolites.
- Shark Bay contains the world's largest seagrass meadows and the diversity of seagrass species is unusually high (12 species).
- Shark Bay is home to 1 of the world's largest Dugong populations.
- Shark Bay is the most important Loggerhead Turtle nesting area in WA and a minor nesting ground for Green Turtles.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$499,601	$457,524	2
DoF		$134,506	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Seascapes	S (KPI)					Insufficient
Water quality	E (KPI)					
Sediment quality	E (KPI)					Insufficient
Coastal biological communities (Stromatolites and algal mats)	E (KPI)					Insufficient
Seagrass communities (intertidal)	E (KPI)					
Mangrove communities	E (KPI)					
Invertebrate communities	E (KPI)					
Finfish (targeted)	E (KPI)					
Finfish (non-targeted)	E (KPI)					
Turtles	E (KPI)					
Wilderness	S (KPI)					
Cetaceans (Whales) and Dolphins	E (KPI)					
Dugongs	E (KPI)					Insufficient

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Seascapes			
Water quality			
Sediment quality			
Coastal biological communities (Stromatolites and algal mats)			
Seagrass communities (intertidal)			
Mangrove communities			
Invertebrate communities			
Finfish (targeted)			
Finfish (non-targeted)			
Turtles			
Wilderness			
Cetaceans (Whales) and Dolphins			
Dugongs			

Management concerns and responses

Seagrass

- Seagrass communities are a concern due to the 2010-11 heating event. DPaW has conducted ground truthing to ensure satellite imagery is accurate and has refined its sampling methodology.

Coastal biological communities

- Unsatisfactory rating for coastal biological communities is based on historical damage as well as pressure from unauthorised coastal access, and run-offs from degraded catchments. DPaW have attempted to reduce the level of unauthorised vehicles accessing the Hamelin Pool Marine Nature Reserve.

Swan Estuary Marine Park and Adjacent Nature Reserve

Location	Alfred Cove, adjacent to Attadale and Applecross; Pelican Point in Crawley and Milyu adjacent to the Como foreshore.
Bioregion	Leeuwin-Naturaliste
Size	340ha (CALM Act marine park) 5.5ha (Reserve 40891 at Pelican Point)
Planning commenced	1996
Park Gazettal	May 1990
IMP released	1997
Management plan gazettal	April 2000
CALM Act classified waters notice (zoning)	Notice not gazetted

Attractions and features

- Popular for recreational activities including bird watching, sightseeing, boating, windsurfing and kite surfing.
- Diverse estuarine and terrestrial communities and habitats.
- High conservation value and diversity provide important education opportunities particularly as the marine park is in the Perth metropolitan area.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$602,988	$614,235	6 across Shoalwater, Marmion and Swan Estuary
DoF		$13,322	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Water quality	E (KPI)					
Sediment quality	E (KPI)					Insufficient
Seabirds, shorebirds, migratory waders	E (KPI)					Insufficient
Invertebrate communities	E (KPI)					Insufficient
Macroalgal communities	E (KPI)					Insufficient
Seagrass	E (KPI)					Insufficient

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Water quality			
Sediment quality			
Seabirds, shorebirds, migratory waders			
Invertebrate communities			
Macroalgal communities	Not assessed		
Seagrass			

Management concerns and responses

Sediment and water quality

- Sediment and water quality were identified as concerns at a whole catchment level. DPaW advised that the incorporation of the Swan River Trust into DPaW should allow for a whole of catchment approach to managing river system health.

Seabirds and shorebirds

- Seabirds and shorebirds were a concern between 2012-13 and 2013-14 due to a lack of research and recreational user groups impacting on feeding, roosting and nesting behaviour. In 2014-15 the management response was to reduce disturbances from dogs, through fencing and publicity.

More visitors

- Increasing numbers of people, vessels and pollution were management concerns from 2012-13 to 2014-15.

Rowley Shoals Marine Park

Location	300km north west of Broome
Bioregion	Northwest Transition
Size	87,633 ha
Planning commenced	1997
Park Gazettal	May 1990 Extended December 2004
IMP release	2004
Management plan gazettal	April 2007
CALM Act classified waters notice (zoning)	June 2007
Fish Resources Management Act s43 notices	February 2009
Subsequent notice amendments	Revoked November 2011

Zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	2	21,207	24
Recreation	3	16,608	19
General use	–	49,818	57

Attractions and features

- Rowley Shoals comprises of 3 unique oceanic atolls.
- Clerke and Imperieuse reefs make up the state Rowley Shoals Marine Park.
- Low level of use makes the park's wilderness qualities a significant drawcard for visitors.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$140,197	$138,092	1
DoF	$92,000	$154,748	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Seascapes	S (KPI)					Insufficient
Wilderness	S (KPI)					Insufficient
Water quality	E (KPI)	Excellent				
Coral reef communities	E (KPI)					
Invertebrate communities	E (KPI)					
Finfish	E (KPI)					
Geology and geomorphology	E					
Turtles	E					Insufficient
Seabirds	E					Insufficient
Cetaceans	E					

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Seascapes			
Wilderness			
Water quality			
Coral reef communities			
Invertebrate communities			
Finfish			

Social values not reported on in 2014-15	Management concerns and responses
• Scientific research • Scuba diving, snorkelling and other water sports • Marine nature-based tourism • Recreational fishing • Petroleum exploration and production	**Monitoring not yet fully established** • DPaW identified that priority should be given to resourcing a dedicated monitoring program to target priorities for ecological KPIs (e.g. finfish). • Management response noted there is no scope in the current budget to fund this program.

Shoalwater Islands Marine Park

Location	Adjacent to the City of Rockingham
Bioregion	Leeuwin-Naturaliste
Size	6,658ha
Planning commenced	1993
Park Gazettal	May 1990
IMP released	1995, re-released in 2006
Management plan gazettal	October 2007
CALM Act classified waters notice (zoning)	May 2008
Fish Resources Management Act s43 notices	April 2010

Zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	3	386	6
Special purpose (wildlife conservation)	1	425	6
Special purpose (scientific research)	1	166	3
General use	–	5681	85

Attractions and features

- Little Penguin colony on Penguin Island is the largest known breeding colony in WA. In 2013-14 Shoalwater Islands Marine Park had over 850,000 visitors, with 130,000 people visiting Penguin Island.
- Diverse range of habitats including seagrass meadows, subtidal and intertidal macroalgal limestone reefs and the silty basin of Warnbro Sound.
- Important nesting and foraging areas for at least 14 species of sea and shorebirds.
- Widely used for scuba diving, snorkelling, sailing, kayaking, water-skiing, kite surfing and windsurfing.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$602,988	$614,235	6 across Shoalwater, Marmion and Swan Estuary
DoF		$13,322	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Seascapes	S (KPI)					Insufficient
Water quality	E (KPI)					
Sediment quality	E (KPI)					
Macroalgal communities	E (KPI)					
Seagrass	E (KPI)					
Finfish	E (KPI)					
Little Penguins	E (KPI)					
Geomorphology	E					
Intertidal reef communities	E					
Sea Lions	E					
Cetaceans	E					
Seabirds and shorebirds	E					
Invertebrates	E					

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Seascapes	Not assessed		
Water quality			
Sediment quality			
Macroalgal communities			
Seagrass			
Finfish			
Little Penguins			

Values not reported on in 2014-15	Management concerns and responses
Ecological • Subtidal soft bottom communities **Social** • Aboriginal heritage • Maritime heritage • Marine nature-based tourism • Recreational water sports • Coastal and island use • Scientific research • Education • Commercial fishing • Aquaculture • Recreational fishing	**Little Penguins** • Environmental factors such as climate change impact on Little Penguins. • DPaW has highlighted the impact of Whitebait (food for Little Penguins) to DoF who manage commercial fishing. • DPaW is using different strategies to manage the nesting environment and penguin interaction on Penguin Island. **Finfish** • Abundance of targeted finfish was low in 2012 and 2014 surveys. • Current spatial zoning is considered to be inappropriate. • Management response was for effort to be put into assessing pressures on targeted species. **Sediment quality** • Management was concerned that no new data has been available since 2006.

Jurien Bay Marine Park

Location	200km North West of Perth
Bioregion	Central West Coast
Size	82,376 ha
Planning commenced	1997
Park Gazettal	August 2003
IMP released	2000
Management plan gazettal	July 2005
CALM Act classified waters notice (zoning)	October 2005
Fish Resources Management Act s43 notices	December 2005

Zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	10	3,061	3.72
Special purpose (scientific reference)	3	14,037	17.04
Special purpose (aquaculture)	4	1,427	1.73
Special purpose (shore-based activities)	4	52	0.06
Special purpose (puerulus monitoring)	1	57	0.07
General use	–	63,742	77.38

Attractions and features

- Sheltered coastal waters are ideally suited to scuba diving, surfing, snorkelling, water-skiing, windsurfing.
- North Fisherman Island is a regionally important Sea Lion breeding site.
- A unique combination of offshore reefs, islands and sheltered lagoons.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$491,800	$503,538	3
DoF	$250,000	$185,826	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Seascapes	S (KPI)					Insufficient
Water and sediment quality	E (KPI)					
Seagrass	E (KPI)					
Macroalgal communities (subtidal)	E (KPI)					
Finfish	E (KPI)					
Pinnipeds (Sea Lions)	E (KPI)					
Geomorphology	E					
Intertidal reef platforms	E					Insufficient
Seabirds	E					Insufficient
Invertebrates	E					
Cetaceans and Turtles	E					

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Seascapes			
Water and sediment quality			
Seagrass			
Macroalgal communities (subtidal)			
Finfish			
Pinnipeds (Sea Lions)			

Social values not reported on in 2014-15	Management concerns and responses
• Aboriginal heritage • Maritime heritage • Commercial fishing • Aquaculture • Coastal use • Recreational fishing • Water sports • Marine nature-based tourism • Petroleum drilling and mineral development • Scientific research • Education	**Finfish** • Targeted finfish remain a concern due to the unsatisfactory management response rating. **Zoning scheme** • The zoning scheme was also a concern in 2012-13 to 2013-14. Management noted it needed review along with the management plan.

Montebello Islands Marine Park, Barrow Island Marine Park and Barrow Island Marine Management Area

Location	125km west of Karratha
Bioregion	Pilbara Offshore
Size	58,329ha (Montebello Islands Marine Park) 4,169ha (Barrow Island Marine Park) 114,693ha (Barrow Island Marine Management Area)
Planning commenced	2000
Park Gazettal	December 2004
IMP released	2004
Management plan gazettal	April 2007
CALM Act classified waters notice (zoning)	June 2007
Fish Resources Management Act s43 notices	June 2008
Subsequent notice amendments	Revoked November 2011

Montebello Islands Marine Park zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	2	28,626	49.08
Special purpose (benthic protection)	1	1,040	1.78
Special purpose (pearling)	11	550	0.94
Recreation	2	1,286	2.2
General use	–	26,827	46

Barrow Island Marine Park zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	1	4,169	100

Barrow Island Marine Management Area zoning scheme	Number	Total area (ha)	% of MPA
Conservation (benthic fauna/seabird protection) area	1	1,642	1
Unzoned area	–	113,051	99

Attractions and features

- Myriad of different habitats such as subtidal coral reefs, macroalgal and seagrass communities, subtidal soft bottom communities, rocky shores and intertidal reef platforms.
- Important breeding areas for several species of marine turtles and seabirds.
- Popular for nature-based tourism operators to take people fishing, diving and wildlife viewing.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$811,501	$755,475	2.7
DoF	$217,000	$186,250	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Water quality	E (KPI)					
Coral reef communities	E (KPI)					
Mangrove communities	E (KPI)					
Macroalgal communities	E (KPI)					
Turtles	E (KPI)					
Finfish	E (KPI)					
Geomorphology	E					
Sediment quality	E					Insufficient
Rocky shore/intertidal reef platform communities	E					Insufficient
Intertidal sand/mudflat communities	E					Insufficient
Subtidal soft bottom communities	E					Insufficient
Marine mammals	E					
Seabirds	E					
Invertebrates	E					

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Water quality			
Coral reef communities			
Mangrove communities			
Macroalgal communities			
Turtles			
Finfish			

Social values not reported on in 2014-15	Management concerns and responses
• Hydrocarbon exploration and production industry • Pearling • Nature-based tourism • Commercial fishing • Recreational fishing • Water sports • European history/maritime history • Scientific research	**Coral** • Coral reef communities identified as a concern since 2013-14 due to bleaching and mortality of some reefs. Management response in 2014-15 was to consider carrying out a recruitment survey using benthic imagery to obtain a 3-year baseline dataset for long-term comparison. Monitoring was conducted in 2015. **Monitoring not yet complete** • Several monitoring and management strategies have not been implemented for turtles, seagrass, cetaceans, shoreline intertidal reef and sand/mudflat communities. Management response in 2014-15 was to include these assets in education programs, visitor information packages and in license approval processes for commercial operators and industrial works.

Walpole and Nornalup Inlets Marine Park

Location	South coast about 120km west of Albany
Bioregion	WA South Coast
Size	1,442 ha
Planning commenced	2003
Park Gazettal	May 2009
IMP released	2006
Management plan gazettal	July 2009
CALM Act classified waters notice (zoning)	November 2009
Fish Resources Management Act s43 notices	N/A

Zoning scheme	Total area (ha)	% of MPA
Recreation	1,442	100

Attractions and features

- Popular for marine nature-based tourism, water sports, nature appreciation and recreational fishing.
- In 2014-15 there was approximately 250,000 visitors.
- At least 40 marine and estuarine fish species are present.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$198,663	$243,378	1.56
DoF	$158,000	$142,997	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Seascapes	S (KPI)					Insufficient
Water quality	E (KPI)					
Sediment quality	E (KPI)					
Invertebrate communities	E (KPI)					
Finfish	E (KPI)					Insufficient
Geomorphology	E					
Macroalgae, seagrass and other primary producers	E					
Sharks and rays	E					
Shorebirds and seabirds	E					

Management effectiveness ratings 2012-13 to 2014-15

KPI	2012-13	2013-14	2014-15
Seascapes			
Water quality			
Sediment quality			
Invertebrate communities			
Finfish			

Ecological and social values not reported on in 2014-15	Management concerns and responses
Ecological: • Sandy beaches and shoreline vegetation **Social:** • Aboriginal heritage • Colonial heritage • Marine nature-based tourism • Recreational fishing • Recreational water sports • Research opportunity • Educational resource	**Finfish:** • Anecdotal evidence suggests the size of Black Bream has decreased over the last 20 years, and pressures are also increasing. • DoF have allocated resources to increase knowledge of this stock by funding acoustical tracking of Black Bream. The data from this research can help inform management on stock levels and possible management responses.

Ngari Capes Marine Park

Location	South-West of WA
Bioregion	Leeuwin-Naturaliste
Size	123,790ha
Planning commenced	2003
Park Gazettal	June 2012
IMP released	2006
Management plan gazettal	February 2013
CALM Act classified waters notice (zoning)	Still to be gazetted
Fish Resources Management Act s43 notices	Still to be gazetted

Zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	15	13,530	10.93
Special purpose (surfing)	10	1,090	0.88
Special purpose (shore based activities)	2	40	0.03
Recreation	2	160	0.13
General use	–	108,970	88.03

Attractions and features

- Commercial fishing and marine nature-based tourism are important commercial activities in the park.
- One of the world's premier surfing regions.
- A significant number of important Aboriginal sites are located within the South West Capes area.
- Important spawning, nursery and feeding grounds for a wide range of invertebrates and fish.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$1,709,692	$1,067,071	2.1
DoF	$778,000	$673,582	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Seascapes	S (KPI)					Insufficient
Water quality	E (KPI)	Excellent				
Macroalgal communities	E (KPI)					
Intertidal reef communities	E (KPI)					Insufficient
Shallow subtidal reef communities	E (KPI)					Insufficient
Deep reef communities	E (KPI)					Insufficient
Invertebrate communities	E (KPI)					
Finfish	E (KPI)					
Aboriginal cultural significance	S (KPI)					

Geomorphology	E					
Coral communities	E					Insufficient
Cetaceans and pinnipeds	E					
Seabirds and shorebirds	E					
Maritime heritage	S					
Marine nature-based tourism	S					
Commercial fishing and aquaculture	S					
Mining	S	Excellent				
Recreational fishing	S					
Recreational water sports	S	Excellent				
Coastal use	S	Excellent				
Educational opportunities	S	Excellent				
Research opportunities	S	Excellent				

Management effectiveness ratings 2013-14 to 2014-15

KPI	2013-14	2014-15
Seascapes		
Water quality		
Macroalgal communities		
Intertidal reef communities		
Shallow subtidal reef communities		
Deep reef communities		
Invertebrate communities		
Finfish		
Aboriginal cultural significance		

*Values increased from low/medium to high management effectiveness in 2014-15 as they were incorrectly assessed in 2013-14.

Management concerns and responses

- No zoning since gazettal reduces the capacity to manage intertidal, shallow reef assets and finfish in particular.

Lalang-garram/Camden Sound Marine Park

Location	150km north of Derby (or 300km north of Broome)
Bioregion	Kimberley
Size	673,000ha (subtidal) 705,000ha (when intertidal area is gazetted)
Planning commenced	2009
Park Gazettal	June 2012 Renamed – October 2013
IMP released	2010
Management plan gazettal	November 2013
CALM Act classified waters notice (zoning)	Still to be gazetted
Fish Resources Management Act s43 notices	Still to be gazetted

Zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	2	135,300	19
Special purpose (whale conservation)	1	168,000	24
Special purpose (wilderness conservation)	1	24,600	3
Special purpose (pearling)	1	56,200	8
General use	–	320,900	46

Attractions and features

- Popular for visitation by cruise ships with visitors undertaking fishing, sightseeing and appreciation of Aboriginal cultural sites.
- Contains coral reef communities, rocky shoals and extensive mangrove forests in the St George Basin and Prince Regent River.
- Home to species with special conservation significance including marine turtles, Snubfin and Indo-Pacific Humpback Dolphins, Dugongs, Crocodiles and several species of Sawfish.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$650,000	681,591	5.9
DoF	$1,580,000	$1,612,361	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Water quality	E (KPI)					Insufficient
Dolphins	E (KPI)					
Aboriginal cultural significance	S (KPI)					Insufficient
Cetaceans (Whales)	E (KPI)					
Finfish	E (KPI)					Insufficient
Mangrove communities	E (KPI)					

Coral reef communities	E (KPI)					Insufficient
Sharks and rays	E					Insufficient
Macroalgae	E					Insufficient
Seagrass	E					Insufficient
Nature-based recreation and tourism	S					
Dugongs	E					Insufficient
Mud	E					
Sand	E					
Rocky shores, platforms and shoals	E					Insufficient
Turtles	E					Insufficient
Saltwater crocodiles	E					
Seabirds and shorebirds	E					Insufficient

Management effectiveness ratings 2013-14 to 2014-15

KPI	2013-14	2014-15
Water quality		
Dolphins		
Aboriginal cultural significance	No data	
Cetaceans (Whales)		
Finfish		
Mangrove communities		
Coral reef communities		

Management concerns and responses

Aboriginal culture and heritage

- No performance measures for Aboriginal culture and heritage. The Joint Management Body will work with the Dambimangari Aboriginal Corporation and traditional owners to develop performance measures and targets.

Research and monitoring not yet fully established

- Ecological value trends are not yet identifiable. Management identified that priority needs to be given to the development of research and monitoring programs to help adequately assess the condition, pressure and management response for values.

Eighty Mile Beach Marine Park

Location	Located between Port Hedland and Broome, stretches 200km from Cape Missiessy to Cape Keraudren.
Bioregion	Eighty Mile Beach/Pilbara Nearshore
Size	200,030 ha
Planning commenced	2009
Park Gazettal	January 2013 (intertidal gazettal awaiting ILUA completion)
IMP released	2011
Management plan gazettal	December 2014
CALM Act classified waters notice (zoning)	Still to be gazetted
Fish Resources Management Act s43 notices	Still to be gazetted

Zoning scheme	Number	Total area (ha)	% of MPA
Sanctuary	3	48,780	24.39
Special purpose (cultural heritage)	4	3,090	1.54
Special purpose (mangrove protection)	1	100	0.05
Special purpose (shore-based activities)	1	560	0.28
Recreation	1	3,980	1.99
General use	–	143,520	71.75

Attractions and features

- A popular tourism and recreation site with visitors attracted to the park's remote seascapes, wildlife viewing and recreational fishing opportunities.
- A Ramsar wetland; 1 of the world's most important feeding grounds for migratory shorebirds and waders and is the primary staging area for shorebirds from Asia, Alaska and Siberia.
- Significant Aboriginal cultural significance, with 3 traditional owner groups having determined native title rights over the area and an area of joint native title determination.

MPA costs 2014-15

Agency	Budget	Actual	Staff
DPaW	$850,000	$844,511	3.8
DoF	$550,000	$396,723	

Performance Assessment 2014-15

Values	Type	Condition	Pressure	Response	Management effectiveness	Data
Seascapes	S (KPI)					Insufficient
Intertidal sand/mudflat communities	E (KPI)					
Mangrove communities	E (KPI)					Insufficient
Scalefish (Finfish)	E (KPI)					Insufficient

Aboriginal cultural significance	S (KPI)					
Seabirds, shorebirds, migratory waders	E (KPI)					Insufficient
Turtles	E (KPI)					Insufficient
Geomorphology	E					Insufficient
Water and sediment quality	E					Insufficient
Subtidal filter-feeding communities	E					Insufficient
Macroalgal and seagrass communities	E					Insufficient
Coral reef communities	E					Insufficient
Marine mammals	E					
Invertebrates	E					Insufficient
Sharks and rays	E					Insufficient

Management effectiveness ratings 2013-14 to 2014-15

KPI	2013-14	2014-15
Seascapes	Not assessed	
Intertidal sand/mudflat communities	Not assessed	
Mangrove communities	Not assessed	
Scalefish (Finfish)	Not assessed	
Aboriginal cultural significance	Not assessed	
Seabirds, shorebirds, migratory waders	Not assessed	
Turtles	Not assessed	

Social values not reported on in 2014-15	Management concerns and responses
• European heritage • Nature-based tourism • Resources and associated industries • Research and associated industries • Recreational fishing • Commercial fishing	**Research and monitoring not fully established** • Currently all research projects are funded by external grants and there is a lack of research data for intertidal sand and mudflat communities, mangrove communities and saltmarshes and scalefish. • DPaW identified that priority needs to be given to resourcing a dedicated monitoring program to target priorities for key ecological values.

Auditor General's Reports

Report No.	Reports 2016	Date Tabled
13	Maintaining the State Road Network – Follow-on Audit	29 June 2016
12	Regulation of Builders and Building Surveyors	22 June 2016
11	Information Systems Audit Report	22 June 2016
10	Opinions on Ministerial Notification	8 June 2016
9	Payment of Construction Subcontractors – Perth Children's Hospital	8 June 2016
8	Delivering Services Online	25 May 2016
7	Fitting and Maintaining Safety Devices in Public Housing – Follow-up	11 May 2016
6	Audit of Payroll and other Expenditure using Data Analytic Procedures	10 May 2016
5	Audit Results Report – Annual 2015 Financial Audits – Universities and state training providers – Other audits completed since 1 November 2015; and Opinion on Ministerial Notification	10 May 2016
4	Land Asset Sales Program	6 April 2016
3	Management of Government Concessions	16 March 2016
2	Consumable Stock Management in Hospitals	24 February 2016
1	Supplementary report Health Department's Procurement and Management of its Centralised Computing Services Contract	8 June 2016 17 February 2016

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