

Jurien Bay Marine Park Periodic Audit Report

July 2008



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Summary of the Audit Findings and Recommendations

The audit has found a very high level of support amongst stakeholders for the existence of the park, its role in protecting local marine biodiversity, value to the local community, and its management by DEC and DoF. Based on evidence relating to the KPIs, the park is well-managed and is consistently meeting all but two of its primary objectives. Based on the information supplied during this audit, the park appears to be failing to meet the objective of comprehensive protection of its biodiversity through provision of adequate sanctuary zones, and there is qualitative evidence that the objectives for the conservation of populations of targeted finfish are not being achieved.

The Recommendations of the audit are:

Recommendation R1: Zoning inadequacy

DEC to initiate (a) the MAC (JBMPCAC) to advise on a consultative process for a review of the zoning scheme, and (b) a review of the zoning scheme to provide for more comprehensive and effective sanctuary zones by 2010.

Recommendation R2: Finfish conservation

Commence a joint research project by DEC and DoF addressing recreationally targeted reef fish species to determine: (a) critical habitats that support these species, and (b) levels of breeding biomass needed to ensure effective achievement of conservation objectives in all the park zones.

Recommendation R3: Recreational shore-based fishing zones

DEC to review the Management Plan with a view to exclude commercial fishing from the shore-based activity zones to provide for high quality recreational fishing experience.

Recommendation R4: Meetings of the Management Advisory Committee

DEC to arrange for the MAC to meet on a more regular basis, at least twice each year.

Recommendation R5: Sea lion interactions

DEC to review the situation in the park in relation to sea lion interactions with a view to clarifying the issues and establishing a clear and practical policy decision on compliance for all park users.

Recommendation R6: Improve the communications strategy

DEC to (a) provide a better web site for the park, (b) continue to organise MAC meetings around presentations by visiting research groups, and (c) arrange for research group presentations at each of the main centres, at public meetings or major tourist destinations as appropriate.

Recommendation R7: Illegal fishing in sanctuary zones

Improve guidance and training about what forms of evidence must be secured to support a prosecution for illegal fishing in the park. If such evidence will not normally be able to be secured, then seek adjustment to the FRMA Orders for the park to enable park-specific rules to be developed and applied to discourage illegal fishing.

Regulatory Context for the Audit

The audit function of the MPRA is specified under section 26B (f) of the CALM Act which states that in relation to management plans for lands and waters vested in it, that the MPRA is:

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

The MPRA has established an MPRA Audit Policy (2002) and endorsed a performance assessment framework to give effect to the audit function (Lloyd *et. al.*, 2005). The Audit Policy provides for annual reviews of performance of each marine conservation reserve and an audit report to accompany the MPRA Annual Report, and periodic audits to provide for mid-term reviews of management performance to support the statutory 10-year review and report on each management plan.

This document reports a periodic audit of the Jurien Bay Marine Park conducted by the MPRA to contribute to the fulfilment of obligations under the Act, consistent with the Audit Policy.

Objectives of the Audit

This periodic review of the Jurien Bay Marine Park is an objective evidence-based audit of management. The scope of the audit is broadly, to consider and report on any aspect of management of the marine reserve, including any specific issue that may be relevant to the management of the park/reserve. Specifically, the audit is to:

- (a) review and report on management outcomes and achievements in respect to the objectives of the Jurien Marine Park Management Plan 2005-2015 (DEC Management Plan # 49);
- (b) report on any issues detected, and management responses/strategies implemented or planned; and
- (c) identify changes or future improvements that may be warranted in the management plan or implementation system in order to meet the established vision and objectives for the Marine Park by 2015.

Audit Process

Objective evidence was sought from records, documents, interviews and direct observations, where possible verified with the relevant agency staff. In addition, the views and opinions of agency staff (particularly DEC and DoF), members of the MAC (or equivalent), and the public were actively sought as part of the audit process.

The audit has been conducted by the MPRA Audit Sub-committee, under delegation from the full MPRA, in four stages:

1. pre-assessment of the documentary evidence;
2. on-site inspection for verification of achievements and inspection of management issues;
3. consultation with staff and stakeholders; and
4. preparation of report and circulation of draft for comments.

In the pre-assessment stage, the available reports and written evidence have been reviewed (listed below, Appendix 1). This evidence has been complemented by interviews with DEC and other agency staff, science experts and stakeholders to determine what progress is being made towards achieving the objectives of the Plan.

Prior to the site inspection, to provide an initial focus for the audit, the Audit Sub-committee prepared and submitted to DEC staff a list of questions and issues that would form the initial focus for the on-site inspection (Appendix 2).

The review of documentation, the findings from the site inspection of any management issues, and matters raised by the stakeholders or staff of the agencies forms the knowledge-base for this Audit.

The benchmarks for determining the acceptability of progress have been set by consideration of the targets established within the Plan, informal comparison with benchmarks and standard procedures used in the other DEC-managed marine parks and reserves, and by comparison with targets set in other Australian/New Zealand marine parks and reserves.

Objective Evidence

The initial set of evidence for this review has been provided by the Jurien Bay Marine Park Coordinator, based in Jurien Bay. The primary documentary information base is the Plan, the reports of the MPRA annual monitoring review workshop (2005/2006, 2006/2007), the contextual information developed prior to park dedication, and the reports of a number of research and monitoring studies conducted by external contractors within the Park (Appendix 1). Issues raised by the staff and stakeholders are summarised at Appendix 3.

The on-site inspection conducted by the MPRA Audit Sub-committee on 12 to 14 May 2008 provided for local discussions with stakeholders and first-hand information about progress against the Plan's management objectives. A subsequent meeting was also held with stakeholders in Perth on 19 June 2008. The staff and stakeholders consulted and the sites visited are listed in Appendix 4.

Management Objectives

This section summarises the management objectives for the reserve, and provides a summary (from the Plan) for the objectives and Key Performance Indicators (KPIs) used to determine if those objectives are being achieved. All the park values are listed here, but only the indicators identified in the Plan as KPIs are assessed in this audit and shown below.

Park Value	Management Objective	KPI
<p>1 Geomorphology: A complex seabed and coastal topography consisting of islands, sub-tidal and inter-tidal limestone reefs, protected inshore lagoons and deeper basins, beaches and headlands.</p>	<p>1. To ensure the structural complexity of the marine park's geomorphology is not significantly reduced by human activities. 2. To ensure coastal landforms within the marine park are not degraded by use.</p>	-
<p>2 Water and sediment quality: The waters and sediments of the marine park are largely pristine and are essential to the maintenance of a healthy marine ecosystem.</p>	<p>To ensure the water and sediment quality of the marine park is not significantly impacted by the input of contaminants.</p>	<p>i. <i>Sanctuary, special purpose (scientific reference), special purpose (shore-based activities) and special purpose (puerulus monitoring) zones</i> – no change from background levels, as a result of human activity in the marine park. ii. <i>General use and special purpose (aquaculture) zones</i> -no change from background levels, unless approved by the appropriate government regulatory authorities</p>
<p>3 Intertidal reef platforms: A diverse range of intertidal reef platforms occur in the marine park ranging from highly protected reefs to reefs fully exposed to the action of swell waves.</p>	<p>To ensure the species diversity and abundance of marine flora and fauna on the intertidal reef platforms of the marine park are not significantly impacted by fishing and reef-walking activities.</p>	-
<p>4 Seagrass meadows: Extensive and diverse perennial seagrass meadows are an important habitat and nursery area for marine life and are important primary producers.</p>	<p>To ensure seagrass meadows in the marine park are not permanently damaged by existing and future mooring and anchoring activities.</p>	<p>Short-term: No permanent loss in the aboveground biomass of perennial seagrasses from 2004 levels in defined areas of highest existing risk. Long-term: No permanent loss in the aboveground biomass of perennial seagrass from 2004 levels as a result of human activities in the marine park</p>
<p>5 Macroalgal communities: Extensive subtidal macroalgal communities with high floral diversity occur in the marine park. These communities are important primary producers and refuge areas for diverse fish and invertebrate assemblages.</p>	<p>To develop an increased understanding of the distribution and diversity of macroalgal habitats in the marine park.</p>	-
<p>6 Seabirds: Islands within the marine park are nesting areas for at least 15 species of seabirds and these birds are a major feature of the coastal environment of the Central West Coast.</p>	<p>To ensure that human activity does not significantly disturb seabird populations in the marine park</p>	-
<p>7 Invertebrate communities: A diverse marine invertebrate community, which includes a number of endemic species.</p>	<p>1. To ensure that management of fishing in the marine park by DoF is consistent with the management targets for invertebrates. 2. To develop an increased understanding of the invertebrate diversity and abundance throughout the marine park.</p>	-
<p>8 Finfish: A rich finfish fauna, which includes an interesting mix of tropical,</p>	<p>1. To ensure that management of fishing in the marine park by DoF is</p>	<p>1. No loss of finfish diversity as a result of human activity in the</p>

Park Value	Management Objective	KPI
sub-tropical and temperate species.	consistent with the management targets for finfish. 2. To develop an increased understanding of the finfish diversity and abundance throughout the marine park.	marine park. 2. No loss in protected finfish species abundance as a result of human activities in the marine park. 3. Abundance and size composition of finfish in sanctuary zones and special purpose (scientific reference) zones to be at natural levels. 4. Management targets for abundance of targeted finfish species in other areas to be determined in consultation with Department of Fisheries and peak bodies.
9 Sea lions: The Australian sea lion (<i>Neophoca cinerea</i>), which is endemic to Australia and specially protected under the Wildlife Conservation Act, breeds on Buller and North Fisherman islands and uses islands in the Jurien Bay region as haul-out sites.	To ensure sea lion populations on breeding and haul-out sites in the marine park are not significantly disturbed by human activities.	Short term: No decline in pup production in the marine park as a consequence of human activities in the marine park. Long-term: Increase in sea lion pup production in the marine park from 1998 (last survey) levels.
10 Cetaceans and turtles: Six species of toothed whale and eight species of baleen whale are recorded from the marine park area. However, the bottle-nosed dolphin (<i>Tursiops truncatus</i>) and humpback whale (<i>Megaptera novaeangliae</i>) are the only cetaceans that are regularly seen in marine park waters. Three species of sea turtle have also been reported in the marine park	To ensure cetaceans and turtles in the marine park are not significantly disturbed by human activities.	-
11 Indigenous heritage: A historical link with indigenous culture	To involve local indigenous people in the management of the marine park	-
12 Maritime heritage: Significant maritime history including four historic shipwrecks between Cervantes and North Head.	To ensure that, in collaboration with the Western Australian Maritime Museum, human activity does not significantly impact historic shipwrecks in the marine park.	-
13 Commercial fishing: Commercial fishing for western rock lobster, abalone, shark, a variety of finfish and minor commercial collecting activities for shells and aquarium fish.	1. To ensure that, in collaboration with the industry and DoF, commercial fishing activities in the marine park are managed in a manner that is consistent with maintaining the marine park's values. 2. To maintain the ecological values of the marine park that are important to commercial fisheries. 3. Cooperate with the industry and DoF in the maintenance of a viable commercial fishing industry in the marine park.	-
14 Aquaculture: The pristine, sheltered waters of the Central West Coast provide significant potential for development of the aquaculture industry.	1. To ensure that, in collaboration with the industry and DoF, the aquaculture industry in the marine park is managed in a manner that is consistent with maintaining the marine park's values. 2. To maintain the ecological values of the marine park that are important to the aquaculture industry.	-

Park Value	Management Objective	KPI
	3. Cooperate with the industry and DoF in the maintenance of a viable aquaculture industry in the marine park.	
15 Coastal use: Recreational use of headlands, dunes and long white beaches for walking, swimming, surfing and fishing are a major value of the Jurien Bay Marine Park	To ensure the amenity value of beaches is not reduced by the inappropriate disposal of litter by marine park users. 2. To ensure vehicle use of marine park beaches does not cause conflict with other users	-
16 Seascapes: Panoramic vistas of turquoise lagoon waters, offshore islands, reefs, beaches, breaking surf and the blue open ocean beyond the reef line are major attractions of the Jurien Bay Marine Park	To identify designated seascapes of the marine park and seek to minimise degradation of these seascapes by coastal developments, island structures or marine infrastructure within the marine park	No significant change in the designated seascapes of the marine park from 2004 levels
17 Recreational fishing: Diverse range of quality recreational fishing opportunities for local and visiting fishers targeting several finfish species, abalone and western rock lobster	1. To ensure that, in collaboration with DoF, recreational fishing in the marine park is managed in a manner that is consistent with maintaining the marine park's values. 2. To maintain the ecological values of the marine park that are important to maintaining recreational fishing in the marine park. 3. Cooperate with DoF in maintaining quality recreational fishing opportunities in the marine park.	-
18 Water sports: The pristine nature and diversity of the natural environment of the Central West Coast provides opportunities for swimming, boating, windsurfing, snorkeling, SCUBA diving, free-diving, surfing, wake-boarding and numerous other water sports	1. To ensure water sports are managed in a manner that is consistent with maintaining the marine park's ecological values. 2. To maintain the ecological values of the marine park that are important to recreational water sports. 3. To manage recreational activities in a manner that minimises conflict between marine park users.	-
19 Marine nature-based tourism: Natural values and accessibility of the area ensure significant tourism potential and opportunity for a variety of marine nature-based tourism activities	1. To manage marine tourism in the marine park in a manner that is consistent with maintaining the marine park's values. 2. To maintain the ecological values of the marine park that are important to the tourism industry. 3. Cooperate with industry and Western Australian Tourism Commission in maintaining a viable tourism industry in the marine park.	-
20 Petroleum drilling and mineral development: Significant onshore reserves of hydrocarbons are being produced in the northern Central West Coast area around Dongara. The hydrocarbon potential of the area encompassing the marine park is not well known	To ensure that, in collaboration with the petroleum industry and DoIR, petroleum industry activities in the marine park are managed in a manner that is consistent with maintaining the marine park's values	-
21 Scientific research: An interesting	1. To provide access and	-

Park Value	Management Objective	KPI
and unusual mixture of tropical and temperate marine plants and animals of particular scientific interest in an area within easy access of Perth	opportunities for ecological and social research in the marine park. 2. To ensure ecological and social research is ethical and ecologically sustainable	
22 Education: Easy access and the close proximity of the marine park to Perth and regional centres provide opportunities for community education about the marine environment	To facilitate the use of the marine park for educational purposes	-

Planning and Management Context

Biophysical

The marine flora and fauna of the Park is a mixture of tropical and temperate species, the former carried south by the Leeuwin Current from tropical northern waters and the latter carried north by the Capes Current from the cool temperate waters of the south coast of Western Australia. The fauna is regarded as being predominantly temperate, however a survey conducted by DEC indicated that tropical species comprise a significant proportion (35%) of the marine fauna found in the region (DEC, 1998¹). Preliminary surveys indicate that the marine biota is very diverse, and includes a number of endemic species, species that have their northern or southern distribution limits in the region and species that are not yet described and 'new' to science. The Park is dominated by five major marine habitat types: seagrass meadows, bare or sparsely vegetated mobile sand areas, shoreline and offshore intertidal reef platforms and subtidal limestone reefs and reef platforms. Extensive seagrass meadows, consisting of at least nine species of seagrass, exist in the Park. Intertidal rock platforms are dominated by small red and brown turf algae, with the large brown algae *Ecklonia radiata* occurring on the permanently submerged outer edges. The subtidal, high relief limestone reefs within the 20 metre isobath are dominated by large algae, particularly the kelp, *Ecklonia radiata*. Deeper, offshore reef platforms are dominated by red algae. Although small coral communities and outcrops are relatively common in the Park, there are no coral reefs.

Marine wildlife includes 14 species of cetaceans (five of which are listed as rare or likely to become extinct), a variety of seabirds and shorebirds which nest on the islands, and the Australian sea-lion *Neophoca cinerea*, a species which is specially protected under the *Wildlife Conservation Act 1950*. North Fisherman Island to the north of Jurien Bay is one of the main breeding sites for sea-lions on the Central West Coast and it is believed this Central West Coast breeding population is genetically distinct from the southern coast population (Gales *et al*, 1992²). Of the total Western Australian population of 2,700-3,400 sea-lions, approximately 800-1,000 occur on the west coast (Gales *et al*, 1994³).

Socio-economic

Commercial fishing for western rock lobster, *Panulirus cygnus*, has the highest economic value of any single species commercial fishery in Australia and is the mainstay of the economy in the Jurien Bay region. Up to 140 rock lobster boats work out of the Jurien Bay area from bases at Green Head, Jurien Bay, Cervantes and Wedge, catching up to a total of 1.6 million kilograms live weight of lobster each season. In addition, commercial wetlining, abalone, shark netting, beach seining for mullet, and collecting of specimen shells and aquarium fishes is carried out within the Park. Aquaculture operations exist in the region and there are two areas zoned for aquaculture within the park so the opportunity for development of this industry is significant.

¹ CALM (1998). *Jurien Bay Regional Perspective*. Department of Conservation and Land Management, Perth, Western Australia.

² Gales, N.J., Cheal, A.J., Pobar G.J. & Williamson P. (1992). Breeding Biology and Movements of the Australian Sea Lion *Neophoca cinerea*, off the West Coast of Western Australia. *Wildlife Management* 19: 405-416

³ Gales, N.J., Shaughnessy, P.D. & Dennis T.E. (1994). Distribution, Abundance and Breeding Cycle of the Australian Sea Lion *Neophoca cinerea* (Mammalia: Pinnipedia). *Journal of Zoology* 234: 353-370

Recreational fishing is a popular activity in the area and it is likely to significantly increase in the future. Recreational fishers target a variety of species, the most highly regarded being the western rock lobster, West Australian dhufish (*Glaucosoma hebraicum*), pink snapper (*Pagrus auratus*), baldchin groper (*Choerodon rubescens*) and abalone (*Haliotis* sp.), however several other finfish and mollusc species are also taken. Recreational fishers employ a variety of methods including line, spear and net fishing, as well as diving and pots for western rock lobster. New fishing rules governing the take of several of these species throughout the region are currently proposed for progressive implementation throughout the broader region, and these will also affect fishing in the park.

The Jurien Bay region's pleasant Mediterranean climate combined with its accessibility to Perth and its sheltered waters have resulted in Jurien Bay being a popular place for a variety of water sports including SCUBA diving, surfing, snorkeling, water-skiing and windsurfing. These same factors, in addition to the natural sites of interest on the adjacent mainland, also contribute to the substantial tourism potential of the area. The Lancelin-Cervantes coastal road (Indian Ocean Drive) currently under construction will make the Jurien Bay region even more accessible from Perth and, together with the major coastal developments proposed for this area, will lead to significant growth of residential developments and the tourism industry in the near future.

State Legislation

Conservation and Land Management Act 1984 – provides the mechanisms by which marine parks and reserves are established, vested and managed; establishes MPRA and functions.

Wildlife Conservation Act 1950 - provides legislative protection for flora and fauna across the State's lands and waters.

Conservation and Land Management Regulations 2002 - provide a mechanism to manage human impacts in marine parks and reserves, through enforcement and licensing.

Wildlife Conservation Regulations 1970 - regulate interaction with fauna and flora through a licensing system.

Fish Resources Management Act 1994 - management and regulation of recreational and commercial fishing and aquaculture in marine parks and reserves by the Department of Fisheries.

Fishing and Related Industries Compensation (Marine Reserves) Act 1997 provides the mechanism by which the holder of an existing authorisation for commercial fishing, aquaculture and/or fish processing may seek compensation if the commercial value of the authorisation is apparently diminished.

Western Australian Marine Act 1982 and *Navigable Waters Regulations 1958* regulate boating in all State waters.

Shipping and Pilotage Act 1967 and *Shipping and Pilotage (Mooring Control Areas) Regulations 1983* – allow for the establishment of mooring control areas.

Environmental Protection Act 1986 – assessment of any development that may have a significant effect on the environment in or adjacent to a marine park or reserve by the Environmental Protection Authority.

Other relevant State legislation includes:

Aboriginal Heritage Act 1972

Acts Amendment (Marine Reserves) Act 1997

Heritage of Western Australia Act 1990

Historic Shipwrecks Act 1976 (Commonwealth)

Land Administration Act 1997

Maritime Archaeology Act 1973

Marine and Harbours Act 1981

Pearling Act 1990

Wildlife Conservation (Close Season for Marine Mammals) Notice 1998

State Policy

New Horizons: the way ahead in marine conservation and management 1998 - provides guidance for the establishment and management of marine parks and reserves to protect representative and special marine ecosystems; commitment to a high level of public participation.

State Water Quality Management Strategy 2004 and *Environmental Quality Management Framework* - provide a framework for water and sediment quality management to maintain high levels of water, sediment and biota quality by managing and controlling the impacts of waste discharges to the marine environment.

Strategy for Management of Sewage Discharge from Vessels into the Marine Environment 2004 – applies three zones to State waters for discharge of sewage.

Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act 1999 - provisions to protect matters of national environmental significance, namely the ecological character of internationally important wetlands, nationally listed threatened species and ecological communities, listed migratory species, the Commonwealth marine environment, the values of world heritage properties, the values of national heritage places, and protection of the environment from the impact of nuclear actions.

Native Title Act 1993 – defines onshore and offshore places; defines creation of a marine park or reserves as a future act, requiring that certain criteria be met to ensure protection and continuation of native title rights and interests.

Commonwealth Policy

Intergovernmental Agreement on the Environment - conservation of marine biodiversity, maintenance of ecological processes, and the sustainable use of marine resources through national strategies including *National Strategy for Ecologically Sustainable Development* (1992), the *National Strategy for the Conservation of Australia's Biological Diversity* (1996), *Australia's Oceans Policy* (1998), and the *Strategic Plan of Action for the National Representative System of Marine Protected Areas: A Guide for Action by Australian Governments* (1999).

Representative System of Marine Protected Areas – being developed cooperatively by government agencies responsible for conservation, protection and management of the marine environment with the primary goal being to establish and manage a comprehensive, adequate and representative (CAR) system of marine protected areas to contribute to the long-term ecological viability of marine and estuarine systems, to maintain ecological processes and systems, and to protect Australia's biological diversity at all levels.

International Conventions and Agreements

Convention on Biological Diversity 1994 - the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources.

Convention on Migratory Species 1979 – intergovernmental agreement that aims to conserve terrestrial, marine and avian migratory species throughout their range.

Japan-Australia Migratory Bird Agreement 1974, *China-Australia Migratory Bird Agreement 1986* and *Republic of Korea-Australia Migratory Bird Agreement 2002* - agreements on migratory bird

conservation and a basis for collaboration on the protection of migratory shorebirds and their habitat.

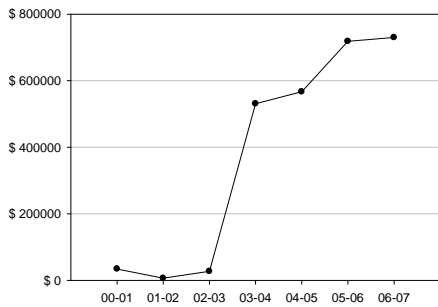
Marine Park Policy

The Jurien Bay Marine Park has a formally constituted Management Advisory Committee (MAC), known as the Jurien Bay Marine Park Community Advisory Committee (JBMPCAC). The committee comprises 5 members of the local community from a cross-section of user and stakeholder interests, including local government. The JBMPCAC provides advice to DEC on any issues relevant to the marine park and its management.

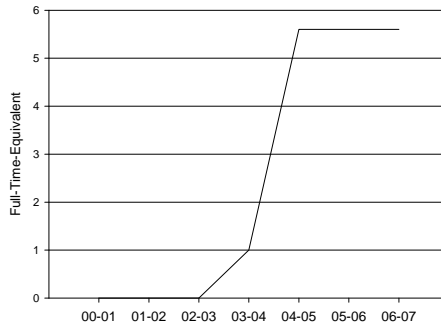
Management Inputs

This section provides a park level summary of total expenditure (actual and budgeted), expenditure by generic management category and staffing levels (i.e. full-time-equivalents) for the statutory life of the Plan for DEC, including the Moora District and specialist branches and divisions, and for relevant activities of the Department of Fisheries.

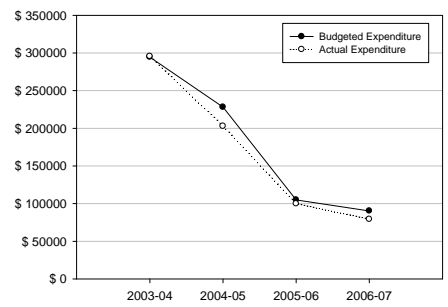
Total expenditure



Staff (Full-time-equivalent)

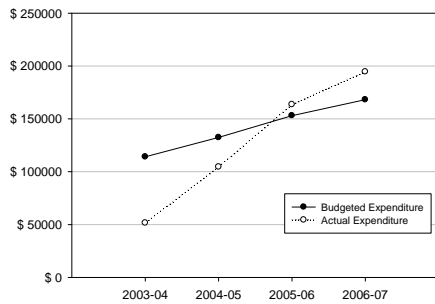


Expenditure: Management & administrative frameworks

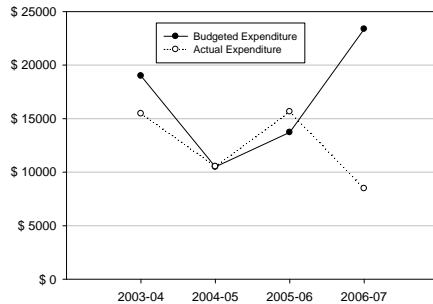


Note: DoF budget allocation is \$250,000 from 2003/04. Note: Includes 2 x DoF staff from 2004/05
Graph does not include budgeted external funds for research or actual external expenditure, which is not known.

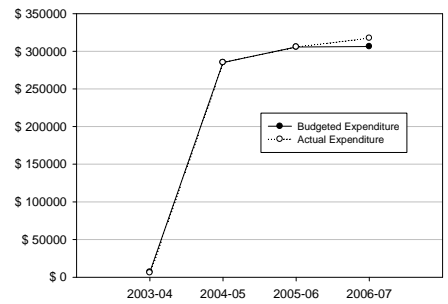
Expenditure: Education and Interpretation



Expenditure: Public Participation

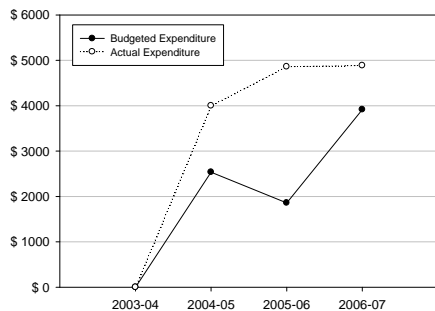


Expenditure: Patrol and Enforcement

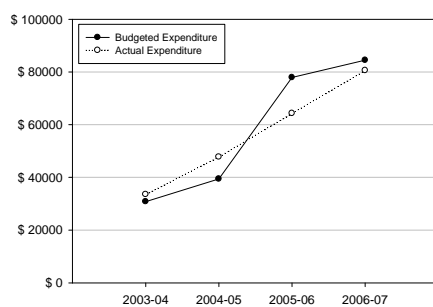


Note: From 04/05, includes DoF allocation of \$250,000

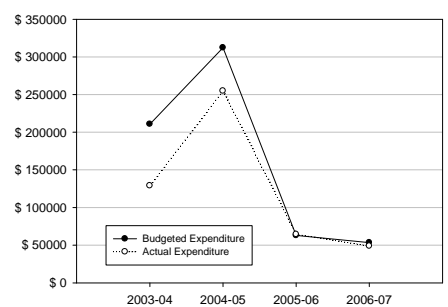
Expenditure: Management Intervention & Visitor Infrastructure



Expenditure: Research



Expenditure: Monitoring



Note: Graph does not include external funds for research (universities & other government agencies)

Management Outputs

This section summarises the management outputs/achievements across seven categories for the 2006/07 year.

MANAGEMENT FRAMEWORKS:	To establish the statutory management frameworks for the marine park.
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Key Outputs/Achievements		Management Plan Reference	Responsibility
1	Human Resource Management (IDAPES, Training etc)		DEC
2	Establishment and maintenance of office / shed infrastructure and equipment		DEC
3	GEHA Accommodation		DEC
4	Clerical Officer		DEC

EDUCATION & INTERPRETATION:	To enhance community understanding of and support for, the marine park through education and interpretation programs
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Key Outputs/Achievements		Management Plan Reference	Responsibility
1	Education and Interpretation Programs	8.2(1)	DEC
2	Visitor compliance, education and interpretation through park staff patrols	8.2(1)	DEC
3	Demarcate park and zone boundaries – terrestrial signage	8.2(1)	DEC
4	Demarcate park and zone boundaries – marine signage	8.2(1)	DEC
5	Maintain marine operational capacity (vessels, running and equipment etc)	8.2(1)	DEC

PUBLIC PARTICIPATION:	To facilitate on-going community participation in the management of the park
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Key Outputs/Achievements		Management Plan Reference	Responsibility
1	Maintain JBMP Community Advisory Committee	8.6(1), 7.2.1(2)	DEC

PATROL & ENFORCEMENT:	Maximise public compliance of regulations related to the ongoing management of the marine park
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Key Outputs/Achievements		Management Plan Reference	Responsibility
1	Develop Patrol and Enforcement Plan	8.3(3)	DEC, DoF
2	Visitor compliance, education and enforcement through park staff patrols	8.3(1)	DEC, DoF
3	Demarcate park and zone boundaries – terrestrial signage	8.2(1)	
4	Demarcate park and zone boundaries – marine signage	8.2(1)	
5	Maintain marine operational capacity (vessels, running and equipment etc)	8.2(1)	

MANAGEMENT INTERVENTION & VISITOR INFRASTRUCTURE:	To remediate existing human impacts on ecological and social values of the park, provide facilities to enhance visitor enjoyment, minimise environmental impact and minimise visitor risk.
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Key Outputs/Achievements		Management Plan Reference	Responsibility
1	Marine Wildlife Rescue	7.1.10	DEC

RESEARCH:	<ol style="list-style-type: none"> 1. To obtain an appropriate understanding of the biodiversity and key ecological and social processes with the marine park. 2. To promote ecological and social research in the marine park that improves knowledge of the marine park and the technical basis for management decisions.
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Key Outputs/Achievements		Management Plan Reference	Responsibility
1	Coordination of external research	8.4(5)	DEC
2	Ongoing grant to University of Tasmania to examine effectiveness of the zoning scheme in JBMP.	7.1.5(2), 7.1.7(2), 7.1.8(2), 8.4(3)	UT, DEC
3	Grant to ECU to further examine the effects of shading on seagrass	7.1.4, 8.4(1)	ECU
4	Grant to Murdoch to examine the trophic interactions of wrasses in JBMP	7.1.8(2)	Murdoch
5	Foraging ecology of Australian Sea Lions and interactions with rock lobster industry	7.1.9(4), 8.4(1)	DoF, DEC

MONITORING:	<ol style="list-style-type: none"> 1. To monitor key ecological values at risk and human usage in the marine park 2. To promote ecological and social monitoring in the marine park that can detect changes to ecological values and aid management decisions
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Key Outputs/Achievements		Management Plan Reference	Responsibility
1	Conduct human usage monitoring program through aerial surveys and site observations.	8.5(2), 7.2.8(2), 7.1.3(3), 7.2.5(4)	DEC
2	Survey long-term seagrass health monitoring sites.	7.1.2(3)	DEC, ECU
3	Conduct Australian sea lion pup count	7.1.9(3)	DoF, DEC

There has been a very significant reduction in monitoring effort funded from DEC resources in the 2005 to 2007 period.

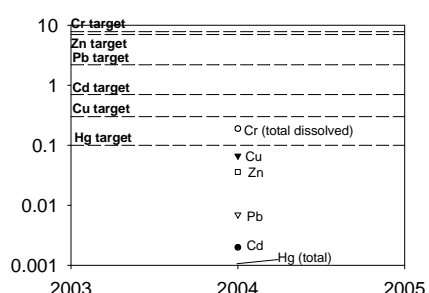
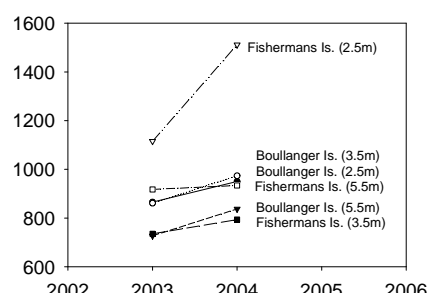
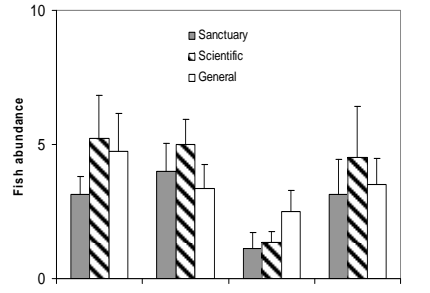
Management Outcomes


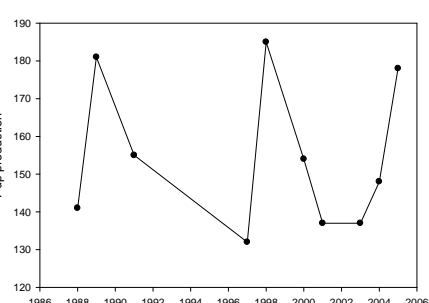
This section summarises the data/information for the outcomes from management of the park in 2006/07 in relation to the specified management objectives contained in the Plan.

CONSERVATION:	<ol style="list-style-type: none"> 1. to maintain the marine biodiversity of the reserve. 2. to maintain ecological integrity systems (i.e. ecosystem structures and functions) of the reserves.
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The strategic outcomes for conservation are assessed using the condition status for the ecological values that are listed as key performance indicators (KPIs) in the management plan. These are water quality, seagrass, finfish (targeted and non-targeted) and Australian sea lions. It is assumed that the condition of the KPIs can be used as a surrogate for determining whether the strategic outcome of conservation continues to be met.

Quantitative data

Water Quality – toxicant conc. (µg/L)	Seagrass – above ground biomass (Density per m ²)	Finfish: targeted species – Mean abundance of fish > 325mm in different management zones
		
CONDITION - GOOD	CONDITION - GOOD	CONDITION - UNSATISFACTORY
Ref: Mc Alpine <i>et. al.</i> 2004	Ref: How & Lavery (2003), (2004)	Ref: Edgar <i>et. al.</i> 2004.

Finfish: non target species – Mean number of fish species in different management zones	Australian sea lions- pup production per breeding season
	
CONDITION - GOOD	CONDITION - GOOD
Ref: local observations	Ref: DoF & DEC surveys

Qualitative assessment

Conservation objectives for the marine park are considered partially achieved with the condition of all KPI values assigned condition ratings of “excellent” to “good”, with the exception of finfish (targeted) rated as “unsatisfactory”. The status of targeted finfish stocks (abundance and size class) is a concern in the marine park as there is a lack of quantitative data on fish populations and the level of fishing effort in the region is high. Anecdotal evidence suggests that populations of targeted fish

stocks are now noticeably lower inside the park than 50+ years ago when fishing pressure was lower. Results of surveys by Edgar *et. al.* 2004 do not yet show any increase in the abundance in large finfish in restricted fishing zones. The status of targeted finfish stocks, the adequacy of the restricted fishing zones and the levels of fishing pressure need to be investigated and monitored at the park spatial scale.

RECREATIONAL USES:	To facilitate, manage and where appropriate, assist in the management of recreational activities in the marine park within an equitable and ecologically sustainable framework
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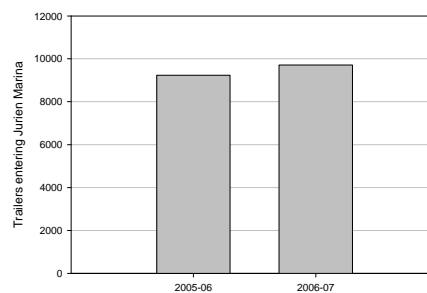
The strategic outcomes for recreational uses include coastal use, recreational fishing and water sports. It is assumed that the completion or on-going implementation (if required) of the following key management strategies (H-KMS) (Sections 7.2.5, 7.2.7 and 7.2.8 of the management plan) can be used as a surrogate for determining whether the strategic outcome for recreational uses continues to be met.

Management Plan Reference	Strategy	Completed; Yes/No/Ongoing
7.2.7(1), 7.2.8(1)	Develop, implement and maintain appropriate zoning strategies in the marine park that permit appropriate recreational uses (DEC, DoF).	Yes
7.2.7 (2)	Evaluate the sustainability of existing recreational fisheries in the marine park (DoF).	No
7.2.7 (3)	Formulate performance measures and targets for key recreational species that will maintain the quality of recreational fishing in the marine park (DoF, Recfishwest, RFAC).	No
7.2.7 (4)	Determine the effects of recreational fishing activities on the marine park's values and review management controls as required (DoF, DEC).	No

Quantitative data

Total visitor numbers

Number of vessels departing Jurien Marina



Ref: CALM Moora District. Based on traffic counter into Jurien Marina.

Qualitative assessment

The recreational uses strategic outcome is considered to be partially achieved on the basis that management zones have been implemented, however there is limited quantitative information on recreational fishing, one of the major recreational activities in the marine park. The effective and ecologically sustainable management of recreational fishing in the marine park requires managers to have an adequate understanding of the fish species targeted, status of the targeted fish stock (abundance, size class), level of take, fishing effort, potential impacts on target fish and non-target fish (caught as by-catch) and potential trophic 'cascade' affects in the ecosystem. In the absence of quantitative information an assessment was made

based on available qualitative information. The status of targeted finfish stocks (abundance and size class) is a concern in the marine park as there is a lack of quantitative data on fish populations and the level of fishing in the region is high. Anecdotal evidence suggests that populations of targeted fish stocks are now noticeably lower inside the park than 50+ years ago when fishing pressure was lower.

COMMERCIAL USES:	To facilitate, manage and where appropriate, assist in the management of commercial activities in the marine park within an equitable and ecologically sustainable framework
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The strategic outcomes for commercial uses include commercial fishing, aquaculture, marine nature-based tourism, and petroleum drilling and mineral development. It is assumed that the completion or on-going implementation (if required) of the following key management strategies (H-KMS) (Sections 7.2.3, 7.2.4, 7.2.6, 7.2.8, 7.2.9 and 7.2.10 of the management plan) can be used as a surrogate for determining whether the strategic outcomes for commercial uses continue to be met.

Management Plan Reference	Strategy	Completed; Yes/No/Ongoing
7.2.3(1), 7.2.4(1), 7.2.8(1), 7.2.9(1)	Develop, implement and maintain a appropriate zoning strategies in the marine park that permit appropriate commercial uses (DEC, DoF).	Yes
7.2.3(2)	Investigate the level of impact of the rock lobster fishery on the habitats, flora and fauna of the marine park (DoF, DEC).	Ongoing
7.2.3(3)	Determine the effects of commercial fishing activity on the marine park's values and review management controls as required (DoF, DEC).	No
7.2.6(1)	Identify and determine the key characteristics and spatial extent of the major seascapes of the marine park (DEC, local government authorities).	No

Quantitative data

No quantitative data are available.

Qualitative assessment

The commercial uses strategic outcome is considered to be partially achieved. Management zones are currently being maintained that allow for and manage commercial uses which are dominated by the Western rock lobster fishery, which is considered (by DoF) to be a sustainably managed fishery. It is noted however that the stock abundance is declining, the potential ecosystem impacts of this fishery within or outside the park are unknown, and that the current zoning scheme in the marine park does not allow an analysis of these impacts as the sanctuary zones contain very little reef and do not encompass any outer reef sites. Other commercial uses including aquaculture, marine nature-based tourism and petroleum are currently low and because of this are considered to be currently ecologically sustainable at present levels of use. However this needs to be justified through further research and monitoring.

SCIENCE:	<ol style="list-style-type: none"> 1. To obtain an appropriate understanding of the biodiversity and key ecological and social processes within the marine park 2. To promote ecological and social research in the marine park that improves knowledge of the marine park and the technical basis for management decisions 3. To monitor key ecological values at risk and human usage in the marine park 4. To promote ecological and social monitoring in the marine park that can detect changes to the ecological
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	values and aid management decisions
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The strategic outcomes of science and education are addressed separately, with science including research and monitoring components. It is assumed that the completion or on-going implementation (if required) of the following key management strategies (H-KMS) (Section 8.4 and 8.5 of the management plan) can be used as a surrogate for determining whether the strategic outcomes for science continue to be met.

Management Plan Reference	Strategy	Completed; Yes/No/Ongoing
8.4(1a)	Develop a coordinated and prioritised research program of key values and process of the marine park (DEC, DoF).	Ongoing
8.4(1b)	Progressively implement a coordinated and prioritised research program of key values and process of the marine park (DEC, DoF).	Ongoing
8.4(2)	Identify and communicate high priority scientific and social research projects relevant to the management of the marine park to appropriate research organisations (DEC).	Ongoing
8.4(3)	Undertake research on the effectiveness of zoning as an aid to achieving the objectives of the marine park (DEC).	Ongoing
8.5(1)	Develop a coordinated and prioritised monitoring program of key values and processes of the marine park (DEC, DoF).	Ongoing
8.5(1b)	Progressively implement a coordinated and prioritised monitoring program of key values and processes of the marine park (DEC, DoF).	Ongoing
8.5(2a)	Develop a database of human usage in the marine park (DEC, DoF).	Ongoing
8.5(2b)	Maintain a database of human usage in the marine park (DEC, DoF).	Ongoing

Quantitative data

No quantitative data are currently available.

Qualitative assessment

The science strategic outcome is considered to be partially achieved, as there are still gaps in information on biodiversity, ecological and social processes in the marine park. These gaps are progressively being addressed through ongoing ecological research (e.g. management zone effectiveness) and some social research (e.g. seascapes). A number of monitoring programs are in place for ecological values (e.g. seagrass, Australian sea lions) and human usage in the marine park. To date only preliminary results and recommendations of research and monitoring programs have been provided to managers.

EDUCATION:	To enhance community understanding of and support for the marine park through education and interpretation programs.
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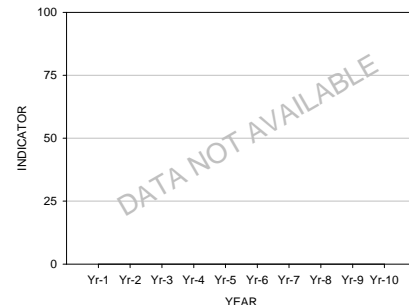
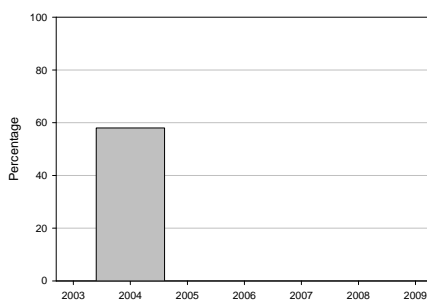
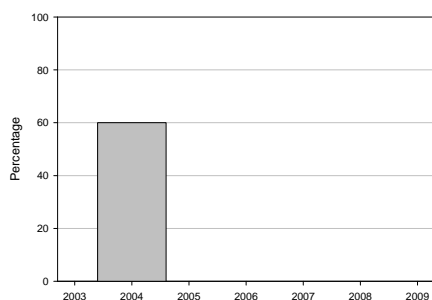
The strategic outcomes of science and education are addressed separately, with education including education and interpretation. It is assumed that the completion or on-going implementation (if required) of the following key management strategies (H-KMS) (Section 8.2 of the management plan) can be used as a surrogate for determining whether the strategic outcomes for education continue to be met.

Management Plan	Strategy	Completed; Yes/No/Ongoing
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Reference		
8.2(1)	Develop in collaboration with DoF and other relevant agencies, education and interpretation programs to ensure users of the marine park are aware of and understand the values of the marine park, management zones and regulations and the reasons for these controls (DEC, DoF).	Ongoing

Quantitative data

Level of awareness of park	Level of awareness of park management zones and regulations	Level of compliance with park management zones and regulations
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Ref: visitor survey (questionnaire) conducted by DEC at Easter 2004, in Green Head, Cervantes and Jurien Bay.

Ref: visitor survey (questionnaire) conducted by DEC at Easter 2004, in Green Head, Cervantes and Jurien Bay.

Qualitative assessment

The “Education” strategic outcome is considered to be achieved on the basis that an education program is in place (e.g. brochures, schools programs, community events, holiday activities program). There is however limited strategic coordination of marine education at the District or Department level (i.e. no Departmental marine education officer position).

PUBLIC PARTICIPATION:	To facilitate on-going community participation in the management of the marine park
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It is assumed that if the following key management strategies (H-KMS) (Section 8.6 of the management plan) are successfully implemented, then the strategic outcome for public participation will be met.

Management Plan Reference	Strategy	Completed; Yes/No/Ongoing
8.6(1)	Establish a Management Advisory Committee (MAC) for the marine park (DEC).	Yes
8.6(1)	Maintain a MAC for the marine park (DEC).	Yes

Quantitative data

No quantitative data are available.

Qualitative assessment

The public participation strategic outcome is considered to be achieved with the establishment of the JBMP Community Advisory Committee (JBMPAC). The JBMPAC conducted 3 meetings in 06/07. A public participation program was implemented as part of education and interpretation programs which is facilitating public participation in a number of research and monitoring programs conducted in the marine park (e.g. human usage aerial surveys).

Matters Raised by Stakeholders

The staff and stakeholders consulted (Appendix 4) raised a number of matters with the audit team. These matters are listed in Appendix 3, in no specific order of priority.

The dominant issues raised were:

1. the high level of acceptance of the marine park by the local stakeholders;
2. the weakness of the zoning scheme in relation to the location and extent of sanctuaries;
3. the interaction of visitors and tour operators with sea lions;
4. the lack of a proper website with useful information for the park;
5. the potential risks from the aquaculture venture;
6. the impending increase in accessibility and people-pressure on the park that will necessitate an increased need for management resources in both DEC and DoF;
7. the lack of communication between researchers and the managers and users of the park, and in particular, data and information is not readily available in a synthesised format; and
8. the difficulty of proving the apparent offence of illegal fishing within a sanctuary zone.

Findings of the Audit

Management Findings

1. The local community and park users have a high level of acceptance of the park and its management. Despite a number of minor issues relating to the ongoing management of the park, there appear to be no major operational management issues currently affecting the park.
2. Recreational usage has not been increasing, but it is likely to increase substantially in the near future. There will be major urban growth through the provision of Indian Ocean Drive, and this will dramatically increase people-pressure on the park. This, together with a projected increased level of tourism to the region, will create additional recreational fishing pressures, and pressures on the coastal infrastructure (camping and access points, jetties, ramps, boat harbours etc).
3. There is a changing profile within the commercial rock lobster industry—fishing effort and pot numbers may become reduced in the next 3 or 4 years, there will probably be fewer and larger boats, and there might be fewer new fishers coming into the industry, and there may result in fewer boats based in the region.
4. No matters of concern to indigenous people were reported to the audit team.
5. The sanctuary zones within the current zoning scheme of the park are highly inadequate. This is a substantive problem for proper conservation of the park's biodiversity, but also is a matter of day-to-day management concern because the sanctuaries are piecemeal with complex boundaries making it difficult to enforce compliance with park rules.
6. The condition of the fish assemblages in the park is unsatisfactory, and action is urgently needed to address this problem. The evidence presented to the audit about the KPIs for finfish (and the qualitative assessment of DEC) provided little support for the achievement of the finfish objectives, and the sanctuaries may not be adequate to prevent an ongoing decline of the sanctuary zone and other zone fish populations.

7. The presently permitted commercial usages within the Special Purpose (Shore Based Activities) zoning of the JBMP should be reconsidered as part of a review of the Management Plan for the Park because the inclusion of commercial activities within a primarily recreational zone appears to recreational users to be inequitable, and may promote a lack of compliance with the rules of this zone.
8. Regulations concerning proximity to sea lions and islands used as haul-out sites should be made consistent for both recreational and commercial vessels and users. In the next revision of the Management Plan, attention should be given to providing practical strategies to ensure compliance by both recreational and commercial vessels and users.
9. The website for the park is very limited and provides a poor and inadequate amount of information about the values, the features/attractions and the park rules.
10. The flow of information from researchers to the park managers and hence into JBMP Annual Reports needs strengthening and a more substantial program of information flow to local communities about research activities requires development.
11. There is an apparent issue with inconsistent signage between JBMP and other parks relating to sanctuary zones.
12. There are a number of local issues of operational management concern, including the management of boat traffic, the ongoing issues of bad smells from the beach wrack at the northern end of the park, and inappropriate refuelling of commercial vessels across the beach rather than from the nearby fuel facility.
13. The MAC does not meet on a regular basis, which may impede the flow of information between park managers and the stakeholders.
14. Other than for finfish, there is evidence to support the view that the targets set within the objectives for which there are KPIs (water quality, seagrass, sea lions, seascapes) are being achieved satisfactorily.

Audit Process

15. There was a very high level of excellent and professional DEC and DoF support/engagement in the process of audit.
16. There was a high level of recognition and acceptance of the audit process by the stakeholders, including the MAC, local government, tourism operators, and researchers.
17. There was a high level of positive engagement of the audit with staff of Western Kingfish Ltd.

Summary of Findings

The audit has found a very high level of support amongst stakeholders for the existence of the park, its role in protecting local marine biodiversity, value to the local community, and its management by DEC and DoF.

Based on evidence relating to the KPIs, the park is well-managed and is consistently meeting all but two of its primary objectives. Based on the information supplied during this audit, the park appears to be failing to meet the objective of comprehensive protection of its biodiversity through provision

of adequate sanctuary zones, and there is qualitative evidence that the targeted finfish objectives are not being achieved. A number of additional and more minor inadequacies have emerged, most of which are readily correctable. All of these matters are addressed in the Recommendations below.

Recommendations of the Audit

The audit has identified the following significant matters that need specific attention within the timeframes shown. Each Recommendation briefly summarises a course of action, and the responsible authorities.

Zoning Inadequacy

Almost all stakeholders raised and strongly highlighted the inadequacies of the current zoning scheme for protection and management of the reserve's biodiversity. This was also a highly controversial aspect of the original zoning process, and the principal reason why the environment NGOs refused to participate in this audit. All the science-based stakeholders, as also well-reflected in the documentary evidence, raised the issue of the lack of both extent and locations of the sanctuary zones which made it very difficult to conduct meaningful research and monitoring activities that would be able to detect declines in the biodiversity of the park related to fishing or any other major pressure. The present sanctuary zones are considered to be small-scale and piecemeal, providing for both a failure to properly protect the biodiversity of the park and major difficulties in compliance and enforcement of the park rules. This appears to be a failure of the zoning scheme to properly protect and manage the biodiversity of the whole reserve. To this extent, the reserve is not currently, and seems unlikely within the life of this plan, achieving the major objectives relating to protection of key biodiversity values in sanctuary zones.

This is not a failure of present-day management, and is not a critical and urgent issue because the current pressures are still moderate, but a process to correct this major problem needs to be commenced to enable the biodiversity objectives to be more demonstrably achieved by the time of the 10-year review of the plan (due 2013-2015). At present, the pressures on the reserve are not high, but the impending coastal developments and greatly increased access will increase the fishing and other pressures on the park in the near future. To prepare for this (which will happen substantively within the next 3 years) the zoning plan should be revised to anticipate the increasing pressures on the biodiversity of the park.

Recommendation R1

(a) DEC to request the MAC (the JBMPAC) to advise on the form and content of a consultative process that should be undertaken in order for a review of the zoning scheme to be conducted with a view to expanding the existing area of sanctuary zones while simultaneously reducing their total number and increasing their enforceability (fewer larger sanctuary zones with simple boundaries);

(b) taking account of the consultative process proposed by the MAC, DEC should review the zoning scheme for the reserve (taking account of the stakeholder views from the consultative process), to provide for more comprehensive representation of all habitat types in sanctuary zones; increase the total sanctuary zone area to be more consistent with world's best practice; increase compactness and enforceability of sanctuary zones through larger areas with straight boundaries aligned with prominent shore markers and simple GPS positions; and provide for more practical zones for recreational shore-based fishing. This should lead to a formal rezoning process to be conducted and completed by 2010, unless the consultative process determines that the rezoning should be completed earlier or there is a rapid escalation in fishing pressure over the next 2 years, in which case the review and rezoning should be completed as quickly as possible.

Finfish Conservation

The evidence presented to the audit about finfish populations indicates that the KPIs for finfish are not likely being achieved. There are two main issues—first, the sanctuary zones do not seem effective in providing sufficient habitat (area or type) for the comprehensive conservation of the finfish of the park, and second, the application of region-wide fishing rules within the park (outside the sanctuary zones) is not effective in achieving conservation of the fish that are identified as key species within the park. The issue is complex and more research is required to fully determine what size and location of sanctuary zones are required, and what if any changes are needed to the fishing rules (including those new rules about to be implemented by DoF) in regard to recreationally targeted species. However, in implementing a rezoning (R1 above) these issues should be addressed to the extent possible, including more representation of a larger area of all the types of habitats, and specific inclusion of all spawning aggregation areas into the sanctuary zones.

While there are regional fishing initiatives underway that will contribute to reducing the problem of overfishing of some of these recreational species, the marine park should develop and apply separate fishing rules to limit the fishing effort and permit fish populations to make a sustained recovery within the park. The new regional fishing regulations and controls proposed to be introduced in 2008 will reduce the fishing effort in the park for a period, but they are not likely to be an effective and systematic long term solution to the problem of overfishing of iconic local fish species given the projected growth in recreational fishing in the region.

Recommendation R2

A research project should be commenced jointly by DEC and DoF addressing the top 10 recreationally targeted reef fish species that occur in the park, to determine:

- (a) all critical habitats that support (feeding, breeding, nursery habitats) these species both within the park and any adjacent regions (including offshore waters if necessary), and
- (b) levels of breeding biomass and their spatial distribution (in park or other adjacent waters if necessary) that are needed to ensure effective achievement of conservation objectives in all the park zones, and strategies needed to provide for such biomass to be achieved and retained.

Shore-based Fishing Zones

The zoning in the Plan allows for shore-based fishing near Jurien Bay township, together with some commercial shore-based fishing. The commercial seine fishers are permitted to use a boat from shore, but this is not permitted for recreational anglers or other commercial fishers and there appears to be a perception of inequitable treatment of recreational fishers that may be encouraging the flouting of the park rules in this zone. This issue should be re-examined as part of a review of the Management Plan for the JBMP with a view to limiting these zones to recreational fishing only and no shore-based use of boats for any fishing activity.

Recommendation R3

DEC to review the Management Plan with a view to excluding any form of commercial fishing operating in or based out of these zones, irrespective of shore or boat-based operation, and to provide for a shore-based recreational fishing zone contiguous with sanctuary zones intended to provide both a clear separation of commercial and recreational fishers, and a high quality shore-based recreational fishing experience for park users.

Meetings of the Management Advisory Committee

The MAC (the JBMPAC) appears to have only met five times since it was created in July 2006.

Recommendation R4

DEC needs to regularise and formally constitute meetings of the MAC at least twice per year with an agenda established by consultation between the MAC and DEC, with substantial advance notice so that there can be a high level of attendance of the members and observers.

Sea Lion interactions

The rights and responsibilities of tour operators vs the general public when interacting with sea lions at both the most popular sea lion sites in the park need review, to determine if there are any specific aspects of this apparent inconsistency that can be resolved. It may well be that more determined compliance enforcement is required, but this would have to be placed in the perspective that the local interactions have no conservation significance, and there have been no negative incidents. Shark attack risk needs also to be carefully considered.

Recommendation R5

DEC to review the situation in the park in relation to sea lion interactions with a view to clarifying the issues and establishing a clear and practical policy decision that can be implemented by the local park managers in an equitable manner for all park users.

Improve Communications Strategy

A common theme from the stakeholders was that there was too little information readily available about the park and its management. While this has to be carefully managed and balanced with other priorities, there should be a higher level of communication instigated for the park.

Recommendation R6

DEC should move to:

- (a) provide a better web site for the park, modelled on (say) the Shark Bay Marine park website;
- (b) continue to organise MAC meetings around a presentation by one or more visiting research groups, and
- (c) arrange for research group presentations at each of the main centres, at public meetings or major tourist destinations as appropriate.

Illegal fishing in sanctuary zones

One stakeholder provided apparent evidence of illegal fishing activity in a sanctuary zone (confirmed by the audit team from an independent source), but there appeared to be some confusion about the enforcement of the rules, based on the rules of evidence that needed to be secured before an action could be commenced by DoF.

Recommendation R7

DEC to arrange for detailed briefings from DoF for specific guidance and training about what forms of evidence must be secured to support a prosecution for illegal fishing in the park. If DEC is of the view that such evidence would not normally be able to be secured, then DEC should seek adjustment to the FRMA Orders for the park to enable park-specific rules to be developed and applied so that illegal fishing can be discouraged through effective prosecutions.

Summary of Audit Recommendations

Recommendation R1: Zoning inadequacy	(a) MAC to advise on a consultative process for a review of the zoning scheme. (b) DEC to review the zoning scheme by 2010.
Recommendation R2: Finfish conservation	A joint research project by DEC and DoF addressing recreationally targeted reef fish species to determine: (a) all critical habitats that support these species; and

	(b) levels of breeding biomass needed to ensure effective achievement of conservation objectives in all the park zones.
Recommendation R3: Recreational Shore-based fishing zones	DEC to review the Management Plan with a view to exclude commercial fishing from the shore-based activity zones to provide for high quality recreational fishing experience.
Recommendation R4: Meetings of the Community Advisory Committee	DEC to arrange for the MAC to meet on a more regular basis, at least twice each year.
Recommendation R5: Sea lion interactions	DEC to review the situation in the park in relation to sea lion interactions with a view to clarifying the issues and establishing a clear and practical policy decision on compliance for all park users.
Recommendation R6: Improve the communications strategy	DEC to (a) provide a better web site for the park; (b) continue to organise MAC meetings around presentations by visiting research groups; and (c) arrange for research group presentations at each of the main centres, at public meetings or major tourist destinations as appropriate.
Recommendation R7: Illegal fishing in sanctuary zones	Improved guidance and training about what forms of evidence must be secured to support a prosecution for illegal fishing in the park. If such evidence will not normally be able to be secured, then to seek adjustment to the FRMA Orders for the park to enable park-specific rules to be developed and applied to discourage illegal fishing.

Appendix 1
Documentary sources provided to the audit

Bancroft K.P. (2005). Central West Coast Marine Biodiversity and Conservation Programme. Baseline water quality marine monitoring in the Northern Agricultural Region, focussing on the West Midlands Sub-region: Field surveys 2004-2005. Data Report: MMS/CWC/JBMP-83/2005. October 2005. Marine Conservation Branch, Department of Conservation and Land Management, Perth, Western Australia. (Unpublished report).
Campbell R. and D. Holley (2007) Foraging ecology of Australian sea lions and the relationship with commercial fishing and marine protected areas. WA Department of Fisheries. Draft Final Report, February 2007
Campbell R.A., N. J. Gales, G. M. Lento and C. S. Baker (2008) Islands in the sea: extreme female natal site fidelity in the Australian sea lion, <i>Neophoca cinerea</i> . Biology Letters 4 , 139-142.
Edgar G., Neville Barrett and Kevin Bancroft (2003) Baseline surveys for ecosystem monitoring within the Jurien Bay Marine Park 1999-2003. Tasmanian Aquaculture And Fisheries Institute Internal Report. Unpublished, December 2003.
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Email from a stakeholder alleging fishing in sanctuary zone: 'Photo's of Cray boat pulling pots in JBMP sanctuary zone'. Two images attached (received 13 May 2008)
Fromont, J., C. Hass, L. Marsh, G. Moore, M. Salotti, M. Titelius & C. Whisson (2006) Biodiversity of Marine Fauna on the Central West Coast. SRFME Final Milestone Report, Western Australian Museum, December 2006.
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Lavery P., and K. McMahon (2006) Ecophysiology of Benthic Primary Producers. Centre for Ecosystem Management, Edith Cowan University. November 2006.
Letter to MPRA from Rod Wilson (Sea Lion Charters), received 21 May 2008, regarding sea lion interactions in Jurien Bay Marine Park.
McAlpine, K.W., R.J. Masini, T. Daly and C. Sim (2007) Background quality of the marine sediments off the Western Australian mid-west coast. Marine Technical Report Series MTR2, DEC, Perth.
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Appendix 2

List of initial questions put to the DEC marine park management staff

1. The Management Plan is clear that as soon as practicable, the tenure of the Park should be moved from low water to high water. Is there any progress on this? Do the other (non-Native Title) stakeholders have a view about the importance/urgency of this? Is there an analysis of HWM vs LWM boundaries and protection offered, within the Park?
2. Around Boullanger Island, where it abuts the sanctuary zone, are the intertidal waters included within the fisheries notices excluding 'take'?
3. Several stakeholders, and a research contractor, have pointed out the imbalances of habitat types in the zoning; is there a process (planned or underway) to develop a more balanced representation of habitats in sanctuary zones?
4. What impacts and issues do you expect the provision of improved road access to the region to bring to the management of the Park?
5. What improvements/updates do you consider to be a priority for the current Plan?
6. What information and/or views do you have concerning patterns of boating, recreational fishing and beach usage development in the various sites of the JBMP over recent years?
7. Have you observed any consistent changes in beachfront sediment or wrack conditions over recent years?

Appendix 3

Matters raised by stakeholders and staff who were consulted, and audit response

Matter raised	Audit action
The sanctuary zones are considered to be highly inadequate for many reasons, mainly failure to properly provide for the conservation of representative habitats of the park, and the difficulty of enforcing compliance	R1
There is a potential for a rapid increase in use with increased access provided by the new road Indian Ocean Drive associated development of housing lots, and increasing tourism	Noted
There is a need for greatly increased surveillance patrols to enforce compliance with the fishing rules	Noted
There has been a recent failure of commercial fisheries – inside and outside the park	Noted
There are different rules that appear to apply to tourism operators as opposed to private visitors in relation to sealion interactions and to boats landing on the islands	R5
The proposed deepwater closure of rock lobster fishing (outside the park boundaries) may interact with fishing in the park, through displacement of effort to within the park	Noted
There is a need for park-specific rules for fishing, because the general fishing rules that apply everywhere are too generous for fishing within the park	R2
There is a considerable amount of scientific research undertaken in the park, and a constant flow of researchers, but almost none of the information is ever made publicly available, and there is little feedback from the researchers to park users or managers	R6
The operational form of the KPIs needs to be much better expressed, because as they presently stand, many (most) are not measurable	Noted
Researchers would be amenable to a licence condition that they provide reports and feedback to park managers	R6
New research is demonstrating the strong ecological linkages between the various habitats of the park; this suggests a cross-shelf arrangement of sanctuary zones would be more effective than the present zoning	R1
The conduct of scientific research in sanctuary zones and reference areas may be having significant impacts and needs to be carefully reviewed and managed	Noted
There is a strong case that the spawning aggregation sites in the park should all be within sanctuary zones	R1
The Water Corporation has undertaken considerable water sampling, both of groundwater and of marine waters in the park in relation to the present and planned urban developments	Noted
The introduction of the new recreational and commercial fishing restrictions will have an unpredictable set of impacts in fish and fishing in the park	R2
The Advisory Committee has not considered the KPIs, and will review at its next meeting	Noted
The KPI for seascapes is considered to apply to structures, floating rigs, moorings, island developments, and coastal vistas	Noted
The website for the JBMP is very poor; almost no real information is provided and it urgently needs updating and expanding	R6
The park declaration has had little obvious impact on professional fishing	Noted

Apparent evidence of an illegal fishing activity was provided by one stakeholder, with follow up copies of correspondence directed to the Minister for Fisheries.	R7
There is a significant potential for the new aquaculture facility at the boat harbour to have a detrimental impact on the marine biodiversity of the park	Noted
There is a lot of uncertainty about the seacages and their intended uses, and how this might affect the park	Noted
Local government is strongly supportive of the park and its management	R6
There is an active discussion about the name of the park, and whether it is the most appropriate and informative.	Noted
There are significant issues associated with the possible expansion of the boat harbour and with the refuelling of commercial vessels across the beach at Cervantes rather than at the nearby commercial wharf	Noted
The smell from decomposing wrack is a major issue at the northern end of the park	Noted
Recreational fishing is a big attraction, but reducing catches is limiting the amenity	Noted
Current levels of recreational usage of the park seems relative stable, but will quickly increase with the new road access and increasing residential development	R1, R2
The distinction between HWM and LWM in terms of vesting is not an urgent issue to resolve in the park, because the fisheries orders are declared to HWM and there are no urgent issues of uncontrolled access	Noted
The cross-authorisation of the DoF/DEC staff is working well, although in both directions it requires intensive training	Noted
Joint DoF/DEC patrols work well	Noted
The signage and marking of zones is different across different parks and needs to be harmonised (for both agency staff and the public)	Noted
About 200 commercial fishers are estimated to operate out of the Jurien area	Noted
Land developers are supportive of the park and its management, and are strongly supportive of sanctuary zones because they provide safe areas for family recreation free from conflict with fishers and most boat traffic	R1

Appendix 4
Consultation schedule, and the staff and stakeholders consulted.

Location	Date	Staff/stakeholder
<i>Jurien Bay</i>	<i>12 May</i>	Kevin Crane, Marine Park Coordinator, DEC
		George Watson, A/District Manager, DEC
		Isaac Hatch, Marine Ranger, DEC
		Greg Finlay, Regional Manager Midwest, DoF
		Darren Harbord, Supervising District Fisheries and Marine Officer, Jurien Bay, DoF
		Ian Stiles, MAC member
		Norm Johnston, MAC member
		Barry Nunn, MAC member
	<i>13 May</i>	Alan Savage, Environmental Manager, Western Kingfish Ltd
		Andrew (Herb) Mitton, General Manager, Western Kingfish Ltd
		Rod Wilson, Sea Lion Charters
		Ian Stiles, Jurien Dive
		Steve McLeary, Central West Coast Professional Fishermen's Association
		Barry Nunn, Central West Coast Professional Fishermen's Association
	<i>14 May</i>	Shane Love, President, Shire of Dandaragan
		Clinton Strugnell, CEO, Shire of Dandaragan
		Belinda McDonald, Councillor, Shire of Coorow
<i>Cervantes</i>	<i>14 May</i>	Lesley Holmes, Pinnacles Caravan Park, Cervantes Chamber of Commerce
		John Astill, Pinnacles Post and Newsagency, Cervantes Chamber of Commerce
<i>Perth</i>	<i>19 June</i>	Terry Fuller, MAC member
		Kane Moyle, A/CEO, Recfishwest
		Sue Morrison, Aquatic Zoology, WA Museum
		Alison Sampey, Aquatic Zoology, WA Museum
		Kathryn McMahon, Marine Ecosystems Group, Edith Cowan University
		David Lantzke, General Manager, Ardross Group
		Peter Goff, MGA Town Planning Consultants

NB: Invitations were also issued to two conservation NGO representatives, but they declined to be involved in the stakeholder consultation process.