Concept Plan SP 2012-008

The Western Australian Marine Monitoring Program.

Marine Science

Project Core Team

Supervising Scientist	Thomas Holmes
Data Custodian	Florian Mayer
Site Custodian	Florian Mayer

Project status as of Sept. 18, 2017, 10:01 a.m.

Approved and active

Document endorsements and approvals as of Sept. 18, 2017, 10:01 a.m.

Project Team	granted
Program Leader	granted
Directorate	granted

The Western Australian Marine Monitoring Program.

Science and Conservation Division Program

Marine Science

Parks and Wildlife Service

Service 2: Conserving Habitats, Species and Ecological Communities

Aims

The Western Australian Department of Environment and Conservation (DEC) is responsible for conservation of the State's biodiversity. Under Australia's obligation as a signatory to the Convention on Biological Diversity (29th December 1993), a National Representative System of Marine Protected Areas is being progressively established throughout Australia's marine jurisdiction by Commonwealth, State and the Northern Territory governments (ANZECC TFMPA 1999). As part of this process DEC, on behalf of the State Government, is establishing a comprehensive, adequate and representative (CAR) system of marine protected areas (MPAs) throughout the coastal waters of Western Australia. These MPA's are vested (legally entrusted) in the independent Marine Parks and Reserves Authority (MPRA) on behalf of all Western Australians under the provisions of the Conservation and Land Management Act 1984. DEC also has the legislative responsibility for conservation of marine fauna and flora across all State's lands and waters.

The importance of implementing a standard approach to monitoring, evaluation and reporting (MER) for assets of State and National significance is receiving greater recognition on the road to National biodiversity reporting (e.g. State of the Environment reports and National environmental accounting). Long-term monitoring of condition, pressure and management response in relation to ecological and related social assets (see Appendix A), along with evaluation and reporting is a key element of determining whether management and conservation objectives are being met and if the State is getting 'value for money' from their marine management and conservation programs.

In response to this need, DEC has established the Western Australian Marine Monitoring Program (WAMMP) which is a statewide long-term, institutional marine MER program currently being developed and implemented primarily to assess the efficiency and effectiveness of MPA and threatened marine fauna biodiversity management and conservation programs. To facilitate and promote management effectiveness WAMMP delivers information on the extent and cause of change in the marine environment using systematic and standardised approaches to data collection, evaluation and reporting over extended periods. Trends in the condition[1] (C) of biodiversity assets is a result of the interplay between natural and anthropogenic[2] pressures (P) and the effectiveness of the management response/s (R) to mitigate these pressures. The primary purpose of MER programs is to provide the asset-based CPR data and trends that are needed to inform adaptive management. MER programs must therefore be designed to ensure that, when changes in asset condition trends are detected, an assessment can be made of whether these changes are caused primarily by natural, anthropogenic or climate change pressures.

The WAMMP provides quantitative evidence of condition, pressure and management response changes to support the MPRA's statutory audit function of MPA's. WAMMP will also inform Marine Policy and Planning in DEC's specialist branches and will collaborate with other State and Commonwealth agencies, NGO's, local communities and industry that have responsibilities or a special interest in marine management and conservation.

The WAMMP is primarily a partnership between the Marine Science Program (MSP) and the marine staff of the Regional Services Division. The WAMMP is coordinated from the Marine Science Program in DEC's Science Division by a coordinator who helps to oversee the planning and delivery of program activity, and facilitates input and collaboration from other government agencies and statutory bodies, industry and community groups. The WAMMP has permanent staffing positions allocated to support this strategic focus, with a central science capability in Perth (i.e MSP) and operational support (i.e. marine staff in Regional Services Division) located in regional centers throughout WA (Appendix B). As management agencies cannot comprehensively and effectively manage on their own and the marine environment is owned by all West Australians, DEC benefits greatly from the help of the broader community.

---

[1] Expressed as asset structure and function

[2] Climate change is an emerging anthropogenic pressure on natural systems worldwide. Because of the potential significance and large temporal and spatial scales involved, CC pressures are treated separately from local scale anthropogenic pressures within the current context.

Expected outcome

As part of annual review of WAMMP outputs there is both an internal DEC MPA asset review process and published MPRA performance assessment reports. Outputs from these documents inform the MPRA annual report to Parliament. WAMMP outputs incorporate:

- Refined historical CPR records for Marine Park assets and threatened fauna;
- On-going quantitative evidence on the status and trends in selected indicators of condition of assets, the pressure/s on these assets and DEC management responses;
- Data to meet legislated audit requirements, and allow measurement of progress towards asset condition, management performance and visitor enjoyment goals;
- Information and understanding of the dynamic nature of undisturbed marine ecosystems;

In recent years managers and civil society are increasingly becoming aware of the value of long time-series datasets as MER provides a better means of learning from past experience, improving service delivery, planning and allocating resources, and demonstrating results as part of accountability to key stakeholders. This performance assessment and adaptive management framework allows conservation managers to respond appropriately to changes as they become apparent and through measurement, adaptation and delivery cycles, refine our approach to managing ecological and social assets.

The WAMMP provides a formalized assessment to determine warning signals of critical condition change to WA marine assets before these change occur. This improved understanding of the effect of key natural (e.g. temperature, coral predators, disease etc) and human pressures (e.g. fishing, dredging, coastal development) allows time for the development of effective mitigation measures to restore, maintain and manage marine biodiversity.

Data from protected environments also offers complementary understanding to information from the resource extraction (e.g. commercial fishing) and industrial (e.g. offshore drilling, port dredging) sectors. WAMMP data can act as a reference point for comparisons with altered environments, and assist State agencies, regulators and developers in better determining and understanding anthropogenic impacts.

Multi-decadal programs like WAMMP require consistent delivery of data that conforms to agreed standards and has defined quality assurance and quality control processes in place. WAMMP needs systems to facilitate regular i) capture of data, with a place to ii) upload, iii) store, iv) discover and access data. Lastly WAMMP needs to be able to design and produce reports from automated work flows that deliver standardised reporting products from defined raw data sets. Provision by WAMMP of time-series of asset condition, pressure and management response information captures the corporate history of what DEC has learnt about changes in asset condition, pressures and the effectiveness of management. This helps DEC managers and the community learn through time, and not suffer the 'shifting baselines' phenomenon as DEC staff and community change. Information management frameworks that manage the collection, entry, quality control and archival of data-sets, and makes them available to contribute to adaptive conservation management for the full lifecycle of WAMMP will be a major benefit to DEC. The development of these systems and processes to service the needs of WAMMP will also have significant flow on benefits to daily operation and the strategic capacity of DEC.

Recognising the 'value for money' imperative, DEC has moved towards an outcome orientated business model that re-affirms the link between management activity and conservation outcomes described in DEC strategic plans and government legislation. WAMMP will play an important part in assisting the re-alignment of work practice and culture, by helping adapt and better integrate DEC business architecture (financial and operational work planning and work-flow designs) and re-focusing effort across work programs to jointly achieve strategic conservation and management objectives.

Strategic context

The project addresses or contributes to strategies in the following documents:

- Corporate Plan (2007-2009): 1.2; 1.3; 1.4; 1.5; 1.6; 2.1; 2.3; 2.4; 4.1; 4.3; 7.1; 7.2; 7.3; 7.4; 7.5; 7.6; 8.1; 8.3; 8.4; 8.5; 8.6; 8.7; 8.8

- DEC Science Division Strategic Plan for Conservation Research (2008-2017): 1.2; 1.12; 1.15; 1.18; 1.19; 1.21; 1.24; 2.1; 2.8; 2.10; 2.11; 2.12; 2.18; 2.23; 2.24; 2.27; 2.35; 2.40; 3.1; 3.2; 3.4; 3.7; 3.8; 3.9; 4.2; 4.5; 4.7; 4.8; 4.9; 4.10; 5.1; 5.2; 5.3; 5.4; 5.5; 6.3; 6.4; 6.5; 6.6; 6.7; 6.8.
- Management Plans Marine Conservation Reserves:

All Marine Reserve Plans: e.g. DEC (2005) Management Plan for the Montebello/Barrow Islands Marine Conservation Reserves 2007 – 2017. Management Plan No. 55. Department of Environment and Conservation.

Expected collaborations

The WAMMP is primarily based on a partnership model between a centralised science capability (DEC's Marine Science Program) and operations divisions (Nature Conservation and Parks and Visitors Services) located in regional centres of interest. Also included as part of the WAMMP are key specialist branches of DEC (e.g. Environmental Management Branch, Marine Policy and Planning Branch, Nature Protection Branch, Species and Communities Branch). In undertaking the MER process DEC will collaborate with other agencies that have responsibilities or a special interest in conservation management and the community.

Proposed period of the project

None – None

Staff time allocation

Role	Year 1	Year 2	Year 3
Scientist Technical Volunteer Collaborator			

Indicative operating budget

Source	Year 1	Year 2	Year 3
Consolidated Funds (DPaW) External Funding			