Concept Plan SP 2014-004

Improving the understanding of West Pilbara marine habitats and associated taxa: their connectivity and recovery potential following natural and human induced disturbance

Marine Science

Project Core Team

Supervising Scientist	Richard Evans
Data Custodian	Richard Evans
Site Custodian	Richard Evans

Project status as of Dec. 6, 2019, 2:17 p.m.

Approved and active

Document endorsements and approvals as of Dec. 6, 2019, 2:17 p.m.

Project Team	granted
Program Leader	granted
Directorate	granted

Improving the understanding of West Pilbara marine habitats and associated taxa: their connectivity and recovery potential following natural and human induced disturbance

Biodiversity and Conservation Science Program

Marine Science

Departmental Service

Service 6: Conserving Habitats, Species and Communities

Aims

The focus of work for Wheatstone development Project Bwill be to add to the understanding of west Pilbara[1] marine habitats (including coral and seagrass communities) and associated taxa, including their level of connectivity and their recovery potential should they be impacted by natural and human induced disturbance. This research aims to build on existing knowledge and integrate with current and proposed connectivity projects on habitat-forming taxa and associated taxa in the tropical north-west of Australia. Broad-scale connectivity studies of flora and fauna within and between the offshore islands of the north-west continental shelf have shown varying levels of connectivity. Previous studies have also shown limited connectivity between inshore and offshore marine communities but there have been no studies looking at connectivity and recovery potential between locations within the Pilbara region, and their connections with the broader inshore locations of Ningaloo to the west and the Kimberley to the north-east.

Rationale

Project B will gain an understanding of connectivity regimes and recovery potential of the major habitat-forming organisms and associated taxa using contemporary molecular techniques. The project will also use oceanographic modelling to predict climate driven variation in connectivity regimes. Primary study locations and indicative species will be chosen based on previous and current studies, oceanographic models, and species distribution maps.

The objectives of this project are:

- to develop and undertake a research program to address key knowledge gaps, identified in Project B, to understand connectivity and recovery potential of key taxa in the West Pilbara, and how that relates to the broader north-west shelf; and
- to ensure data are summarised, presented, stored and accessible to Government, industry and the local community.

Expected outcome

This research will enable greater understanding of the connectivity of fauna and flora of the West Pilbara region which will enable better management of the region. Information on sources of recruitment, recruitment hotspots, dispersal distances, and the oceanographic processes driving this system provides knowledge to help understand recovery potential from natural or human induced disturbances. Ecological and management information gained in this project will enhance environmental management of current and future industrial development along the Pilbara coastline, enhance our understanding of climate related impacts, enable better design and management of existing and proposed marine protected areas, assist fisheries and marine fauna management within Pilbara waters, and similarly benefit other regions in Western Australia and globally through delivering a greater understanding of species and community connectivity across tropical systems.

Strategic context

The project addresses the following strategies in:

- Corporate plan (2007-2009): 1.2, 1.3, 1.4, 1.5, 8.1, 8.4, 8.5
- A strategic plan for biodiversity conservation research (2008-2017): 1.16, 1.25, 2.11, 2.27, 2.35, 3.8, 4.9, 6.3, 6.5, 6.6, 6.7

- Marine Science Strategy: 6.2.2, 6.2.4, 6.2.5, 6.2.6, 6.3.1, 6.4.1
- Montebello/Barrow Island Marine Conservation Reserves management plan:9.1.4, 9.1.5, 9.1.6, 9.1.13
- Ningaloo Marine Park and Muiron Islands Marine Management Area management plan: 7.1.4, 7.1.8, 7.1.9, 7.1.12, 7.2.9.

Expected collaborations

Collaborations are expected to be developed with other State (e.g. Department of Fisheries) and Commonwealth Government (e.g. AIMS, CSIRO) marine research agencies, the Dampier Port Authority, Western Australian universities, locally-based resource companies and local stakeholder groups.

Proposed period of the project

Jan. 7, 2014 – None

Staff time allocation

	Year 1	Year 2	Year 3
Senior Research Scientist	1	1	1
Technical	0.2	0.5	0.5
	Year 1	Year 2	Year 3
Senior Research Scientist	1	1	1

Indicative operating budget

	Year 1	Year 2	Year 3
Operational Funds (Department of Parks and Wildlife)			
External Funds	300	300	300