



# **Pluto LNG Environmental Offset D - Research and monitoring in the proposed Dampier marine reserves**

## **PROGRAM ANNUAL REPORT**

September 2015



Department of  
**Parks and Wildlife**



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September 2015

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# Contents

1	Introduction .....	1
2	Progress to Date .....	2
2.1	Research project updates .....	3
2.2	Expenditure .....	6
2.3	Publications and Presentations .....	7
3	References.....	8
	Attachment 1 .....	9
	Attachment 2 .....	10
	Attachment 3 .....	11

# 1 Introduction

The marine and coastal environment of the Dampier Archipelago/Cape Preston Region has a unique combination of offshore islands, intertidal and subtidal reefs, mangroves, macroalgal communities and coral reefs. The area has been the focus of increasing human usage since Hamersley Iron established the settlement in 1963, and continues to be under intensive anthropogenic pressure, associated with major industrial expansion, port development and operations, dredging activities, salt works operations, aquaculture, increasing tourism, and the associated high rate of boat ownership and commercial and recreational fishing activities. The high value of the natural assets and increasing pressures highlights the need for enhanced marine protection of the area.

Woodside's Pluto LNG Project is an approved operation utilising the Dampier area for supporting infrastructure for the extraction of gas, including the presence of a gas pipeline to an onshore processing facility, storage and then export via a shipping port with the associated loading jetty and channel. A large scale dredging program has been completed to support the port infrastructure required for the LNG processing and export facility. The EPA recommended conditional approval for the proposal provided Woodside implement a substantive offset package.

The Pluto LNG Offset 'D' Program was initiated as a result of Ministerial Approval Statement 757 (the statement). Published on 24 December 2007, section 13 of the statement requires an offset package to be implemented by the proponent. The contractual arrangements for Pluto LNG Project Offset 'D' Program are outlined in the Funding Agreement between Woodside Burrup Pty Ltd in its capacity as operator of the Pluto LNG development and the state of Western Australia acting through the Chief Executive Officer of the then Department of Environment and Conservation (DEC). The Agreement was signed on the 20 January 2011 by Keiran McNamara, Chief Executive Officer of DEC and Lucio Della Martine, Executive Vice President Pluto.

As part of the reporting requirements outlined in section 2.2 of the Agreement, the Department of Environment and Conservation, now the Department of Parks and Wildlife (Parks and Wildlife), is required to provide Woodside with a Program Annual Report by 30 September for each year the Program operates. The annual report is to include a summary of the following:

- (i) Status updates on each of the research projects that form part of the Program as outlined in Attachment 1;
- (ii) Total amount spent on the Program for the reporting period and in total to date; and
- (iii) Publications, seminars and other public fora at which the findings of the Program have been presented.

This document is the Program Annual Report for the reporting period 1 July 2014 to 30 June 2015.

Ministerial Approval Statement 757 defines the focus of the Pluto LNG Offset 'D' as '*Research and monitoring consistent with the Indicative Management Plan for the Dampier Archipelago Marine Park*'.

The Agreement consists of funding of \$3.8 million which has been subdivided into four marine science projects that collectively make up the Program. These projects, as outlined in Attachment 1, were identified as priorities from the Indicative Management Plan for the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area (CALM, 2005).

The four marine science projects are:

- i. *Review, assess and summarise historical data relevant to the management of the proposed Dampier Archipelago Marine Park and Regnard Marine Management Area;*
- ii. *Determine distribution, patterns and key processes of major marine communities and large marine fauna of the proposed Dampier Archipelago Marine Park and Regnard Marine Management Area;*
- iii. *Describe patterns and trends in human use in the proposed Dampier Archipelago Marine Park and Regnard Marine Management Area; and*
- iv. *Establish long-term monitoring reference sites in the proposed Dampier Archipelago Marine Park and Regnard Marine Management Area.*

Project 1 commenced in 2011 and the final report was completed in February 2015. Projects 2 and 3 will be initiated in the 2015-2016 financial year. Project 4 was initiated in July 2014 using the information gathered in Project 1, and initial background work and some monitoring was carried out over the past 12 months.

## 2 Progress to Date

During the 2014/2015 reporting period, Project 1 was completed and a report documenting historic research and monitoring has been finalised (Attachment 2). The detailed information on the spatial and temporal extent of research and monitoring in Project 1 is being used to plan and initiate projects 2 - 4 which will involve collaborations with other agencies with relevant expertise. In 2014/15, work commenced on Project 4 (monitoring), and this involved initial familiarisation, planning, site selection and the commencement of monitoring fieldwork.

Planning for Project 4 incorporated prioritisation of marine park assets for monitoring according to Simpson et al. (2015). Using this framework twelve people from government, industry and academia, with good knowledge of the marine environment in the Dampier Archipelago, assessed the value of ecological assets and the pressure associated with that asset. The assets coral, fish, turtles, mangroves, macroalgae and seagrass were identified as high priority for monitoring.

The same prioritisation framework was used to identify assets that were high priorities for applied and fundamental research. This information, combined with

research priorities identified in Kendrick et al. (In prep), are being used to generate a plan for research expenditure under Project 2.

## 2.1 Research project updates

*Project 1: Review, assessment and summary of historical data relevant to the management of the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.*

- Report for Pluto Project 'i' – 'Learn from the past to manage the future' was drafted, with the support of other MSP staff and external collaborators.
- The final report was reviewed through the Parks and Wildlife internal review process, by Dr Stuart Field and Dr Shaun Wilson.
- The final report was completed, submitted to the Parks and Wildlife's Marine Science Program Leader and approved for publication as a government report (see Attachment 2).
- The final report has and will be used to advise the development of Projects 2, 3 and 4.

2014/2015 Achievements/Major Activities		Timing/Status
1	Completed draft of final report	Dec 2014
2	Completed internal reviews and submitted final report	Feb 2015
2015/2016 Milestones/Major Activities		Timing/Status
1	Maintenance of confluence webpage incorporating additional data as it becomes available	Ongoing

*Project 2: Distribution, patterns and key processes of major marine communities and large marine fauna of the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.*

- Planning discussions regarding modes of delivery for Project 2 have commenced with more detailed frameworks currently being developed by senior research scientists and external collaborators.
- A research prioritisation was carried out through consultation with 12 regional experts from government agencies, industry, non-government organisations and consultants to identify assets and pressures most in need of investigation.

2014/2015 Achievements/Major Activities		Timing/Status
1	Identified multiple research opportunities to be commenced in the 2015/16 reporting period	July 2015
2015/2016 Milestones/Major Activities		Timing/Status

1	Complete the project planning requirements to commence research including the development of Science Concept and Project Plans.	June 2016
3	Planning of Field Program	June 2016

*Project 3: Patterns and trends in human use in the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.*

- Building collaborations and networks with other researchers for the development of techniques/methodology, so that the results of this project can form part of greater framework across the Pilbara region.
- Discussions regarding modes of delivery for Project 2 have commenced with more detailed frameworks currently being developed between the Department of Parks and Wildlife and external collaborators.

2014/2015 Achievements/Major Activities		Timing/Status
1	Identification of programs within the State and particularly the Pilbara region incorporating investigations of human use.	March 2015
2	Discussions with Departmental experts and project managers on the best delivery mechanism and timing.	May 2015
2015/2016 Milestones/Major Activities		Timing/Status
1	Complete the project planning requirements to commence research including the development of Science Concept and Project Plans.	June 2016
2	Select appropriate survey methodologies for quantifying human use across the proposed marine park	June 2016

*Project 4: Establishment of long-term monitoring reference sites in the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.*

- A monitoring prioritisation through consultation with 12 regional experts from government agencies, industry, non-government organisations and consultants was used to identify high priority monitoring objectives. The assets selected for the focus of the work include:
  - Coral
  - Fish
  - Mangroves
  - Macroalgae
  - Seagrass

- Based on this information a Science Concept Plan has been written detailing the work that will be completed.
- The Science Concept Plan was reviewed internally and approved by the Science Management Team.
- Collaboration with Parks and Wildlife regional offices, Woodside, CSIRO, Department of Fisheries, universities, and traditional owners is being maintained throughout the project.
- Information collected in Project 1, as well as advice from collaborators, the Indicative Management Plan, and scoping fieldwork, were used to select long-term monitoring sites for coral and fish communities (sites in Attachment 3)
- The monitoring program was initiated through the establishment of 15 long-term monitoring sites for coral and fish communities.
- Collection of marine community health data has been established including;
  - Coral cover and diversity was recorded with digital images along 3 x 50m permanent transects at each site.
  - Fish size and abundance recorded along 6 x 50m transects using stereo Diver Operated Video.
  - Deployment of temperature loggers at four sites.

<b>2014/2015 Achievements/Major Activities</b>		<b>Timing/Status</b>
1	Completed project planning requirements to commence research including monitoring prioritisation, Science Concept and Project Plans.	June 2015
2	Select long-term monitoring sites for Key Performance Indicators listed the Indicative Management Plan, as well as field verification of site suitability.	Feb 2015
3	Commencement of long-term monitoring beginning with high priority species (i.e. coral communities and finfish) including <ul style="list-style-type: none"> <li>- Establishment of permanent survey sites.</li> <li>- Completing first site survey.</li> </ul>	May 2015
<b>2015/2016 Milestones/Major Activities</b>		<b>Timing/Status</b>
1	Analysis and compilation of coral and fish community data, and the drafting of a document describing permanent monitoring sites.	Dec 2015
2	Analysis of GIS imagery from 2014 for mangrove community health, and ground-truth to assess long-term monitoring sites.	Nov 2015
3	Development of techniques/methods to monitor tropical macroalgae and seagrass communities as well as establishing long-term monitoring sites for these assets.	June 2016



## 2.2 Expenditure

The total amount of expenditure for the 2014/15 reporting period (1 July 2014 – 30 June 2015) was \$178,584.93. The total expenditure for the program to 30 June 2015 was \$471,978.30. Interest was paid on this account in 2014/2015 totalling \$99,577.98. This expenditure was limited to Project 4.

### *Financial summary of the Program for all financial years of operation*

Activity	Opening balance (1 July 2014)	Income/Interest (2014/15)	Proposed Expenditure (2014/2015)	Actual Expenditure (2014/2015)	Closing balance (30 June 2015)
Interest		\$99,577.98			
Project 4			\$200,000	\$178,584.93	
<b>TOTAL</b>	<b>\$3,582,013.87</b>	<b>\$3,681,591.85</b>		<b>\$471,978.30</b>	<b>\$3,503,006.92</b>

### *Expenditure for Project 4 against the Pluto LNG Offset 'D' Program Account 2014/2015*

Activity	Expense
Salary and wages	\$139,186.64
Operating	\$16,087.37
Plant	\$9,426.61
Travel	\$4,554.34
Internal charges	\$9,329.97
<b>TOTAL</b>	<b>\$178,584.93</b>

### *Expected expenditure for Project 4 for 2015/2016 financial year*

Activity	Expense
Salary and wages	\$134,716.00
Operating	\$25,100.00
Plant	\$2,500.00
Travel	\$8,100.00
Internal charges	\$19,331.00
<b>TOTAL</b>	<b>\$189,747.00</b>

## 2.3 Publications and Presentations

### *Publications*

Pluto LNG Environmental Offset D – Program Annual report to Woodside, 20/09/15.

Department of Parks and Wildlife (2015) Final Report for Pluto Project 'i' – 'Learn from the past to manage the future'. Department of Parks and Wildlife, Perth.

Facebook post detailing coral and fish monitoring trip posted on Parks and Wildlife website on 09/06/15.

Science Concept Plan 2015-015 Establishing long-term monitoring in the proposed Dampier Archipelago marine reserves. Department of Parks and Wildlife, Perth.

### *Presentations*

Presentation at Pilbara Marine Conservation Partnership (PCMP) Symposium. Pluto Offset 'D' - Research and monitoring in the proposed Dampier marine reserves. November 2014.

Formal discussion and presentation of project to Woodside. January 2015.

### 3 References

Department of Conservation and Land Management, 2005. *Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area 2005* Department of Conservation and Land Management.

## Attachment 1

## Marine Science Projects for PLUTO Offset D: Dampier Archipelago marine parks and reserves

Project title	Funding (\$'000s) <sup>1</sup>					Potential collaborators	Rationale
	Year 1	2	3	4	5		
1. Review, assessment and summary of historical data relevant to the management of the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area	50	200	50	-	-	Industry, State Govt departments, AIMS etc	Large amounts of data have been collected by a range of agencies and industry in this area over the past two decades. This project will assess existing datasets in relation to the projects below and future environmental management needs to avoid 're-inventing the wheel'. A database will be constructed to ensure future access to existing information (i.e. 'one-stop shop' approach).
2. Distribution, patterns and key processes of major marine communities and large marine fauna of the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area	300	300	400	400	400	AIMS, WAM, DoF	Will build on existing datasets (e.g. DPAW, WAM, Industry) and provide a more comprehensive understanding (incl. habitat maps) of the major communities and large marine fauna distributions (focus on turtles, dugong, seabirds). Will provide a better ecological basis for future MPA planning and management and the assessment and management of potential impacts of development proposals.
3. Patterns and trends in human use in the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area	200	200	200	100	100	AIMS, MU	Will complement the above data by identifying those human activities that pose an unacceptable level of risk to the marine biodiversity of the region (existing and future) and identify areas of existing and future conflict between competing uses (e.g. marine tourism and industrial development. May include a community monitoring component.
4. Establishment of long-term monitoring reference sites in the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area	100	200	200	200	200	AIMS, CSIRO, industry, DoF	Will complement existing industry 'reference' and 'impact' monitoring sites; Will provide a better understanding of the nature and extent of natural variation and causes and help separate natural from human-induced changes in the environment; will assist and be integrated with MPA monitoring programs. May include a community monitoring component.
<b>TOTAL</b>	<b>750,000</b>	<b>900,000</b>	<b>750,000</b>	<b>700,000</b>	<b>700,000</b>	<b>\$3,800,000</b>	

Key: AIMS= Australian Institute of Marine Science; WAM = WA Museum; MU = Murdoch University; JCU= James Cook University; DoF= Department of Fisheries

(Adapted from Woodside, 2009)

<sup>1</sup> Funding allocations are indicative only and will be reviewed once the project 1 review is completed and detailed project planning is undertaken.

## **Attachment 2**

**Final report for Pluto Offset 'D' Project 1, titled 'Learn from the past to manage the future'**

# Report for Pluto Offset 'D' Project 'i' – 'Learn from the past to manage the future'

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# Contents

Acknowledgments .....	8
Summary .....	9
1 Introduction .....	10
1.1 Context.....	13
1.2 Project aims .....	14
2 Methodology .....	15
2.1 Context setting .....	15
2.2 Data Prospecting.....	17
2.3 Data Mining.....	18
2.4 Reporting .....	18
3 Summary of Findings .....	19
3.1 Aim P(i) .....	19
3.2 Aim P(ii): .....	22
3.2.1 Coral .....	23
3.2.2 Finfish .....	24
3.2.3 Invertebrates.....	25
3.2.4 Intertidal Sand & Mudflat Communities and Subtidal Soft-bottom Communities .....	27
3.2.5 Mangroves.....	28
3.2.6 Turtles.....	30
3.2.7 Water quality.....	31
3.2.8 Non-KPIs .....	33
3.3 Aim P(iii):.....	34
3.4 Aim P(iv):.....	36
References.....	37



## Figures

Figure 1 Map of the Dampier Archipelago and its relative location. Upper; IMCRA zoning for the North-West showing position of Dampier relative to Western Australia, encompassing both Pilbara (nearshore and offshore) IMCRA regions. Lower; map showing the study area for this project. ....	11
Figure 2 Map showing location of all datasets collected during this project (grey circles). Overlaid is a summary grid showing site intensity in a 10x10 km matrix. The study area is outlined in red. Not all datasets are represented here as some lacked exact positional information. ....	20
Figure 3 Location of all coral datasets. The study area is outlined in red. Only datasets with adequate location information are included.....	23
Figure 4 Location of all finfish datasets. The study area is outlined in red. Only datasets with adequate location information are included.....	24
Figure 5 Location of all invertebrate datasets. The study area is outlined in red. Only datasets with adequate location information are included.....	26
Figure 6 Location of all ISMC (Orange) and SSBC (Pink) datasets. The study area is outlined in red. Only datasets with adequate location information are included. ....	27
Figure 7 Location of all mangrove community datasets. The study area is outlined in red. Only datasets with adequate location information are included. ....	29
Figure 8 Location of turtle nesting surveys undertaken in the region. The study area is outlined in red. ....	31
Figure 9 Location of all water quality datasets. The study area is outlined in red. Only datasets with adequate location information are included.....	32
Figure 10 The framework for Marine Science Information Management, implemented by the Marine Science Program.....	35

## Tables

Table 1 Summary table of assets and metrics .....	16
Table 2 Rationale for priority rating datasets. Both spatial and temporal results are summed for a total rating. ....	18
Table 3 List of the major organisations who have carried out research/monitoring in the study area. A full list of acronyms and their definitions can be found on page vii.....	21
Table 4 Temporal representation of research and monitoring carried out in the study area. This is divided into individual Key Performance Indicators (KPIs) as identified in the IMP.....	22
Table 5 Total number of datasets identified for each asset, catagorised according to KPIs listed in the IMP .....	22
Table 6 Priority rankings for coral community datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2).....	24
Table 7 Priority rankings for finfish datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2) .....	25
Table 8 Priority rankings for invertebrate datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2).....	26
Table 9 Priority rankings for ISMC and SSBC datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2).....	28
Table 10 Priority rankings for mangrove community datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2).....	30
Table 11 Priority rankings for water quality datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2).....	32
Table 12 List of other asset datasets discovered during the project which were not listed as KPIs in the IMP .....	33
Table 13 Number of non-KPI asset datasets which were collected from industry and non-industry sources.....	34

## Appendices

Appendix 1 Ministerial Statement 757 Schedule 6

Appendix 2 Key Performance Indicator datasets .

Appendix 3 Bibliography of all reports accessed for data, as managed by Zotero

## Table of Abbreviations

AIMS	Australian Institute of Marine Science
CALM	Department of Conservation and Land Management
ChEMMS	Chemical and Environmental Monitoring of Mermaid Sound
DEC	Department of Environment and Conservation
DoF	Department of Fisheries
PPA	Pilbara Ports Authority
Parks and Wildlife	Department of Parks and Wildlife
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMP	Indicative Management Plan
ISMC	Intertidal Sand and Mudflat Communities
KPI	Key Performance Indicator
LNG	Liquefied Natural Gas
MPRA	Marine Parks and Reserves Authority
MSIM	Marine Science Information Management
MSP	Marine Science Program
OEPA	Office of the Environmental Protection Authority
SKM	Sinclair Knight Merz
SSBC	Subtidal Soft-bottom Communities
WAM	Western Australian Museum
WAMMP	Western Australian Marine Monitoring Program

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The authors of this report would like to thank all Marine Science Program asset leaders and members of the technical reference group. We would also like to thank Dr. Shaun Wilson, Dr. Stuart Field and Dr. Alan Kendrick for the valuable feedback during the review process. Particular thanks go to Dr. Jim Stoddart from MScience, Dr. Rachael Marshall from the Parks and Wildlife's Pilbara Region and Wayne Young from the Damper Port Authority. We would also like to acknowledge the guidance and collaborative support of Woodside Energy Ltd.

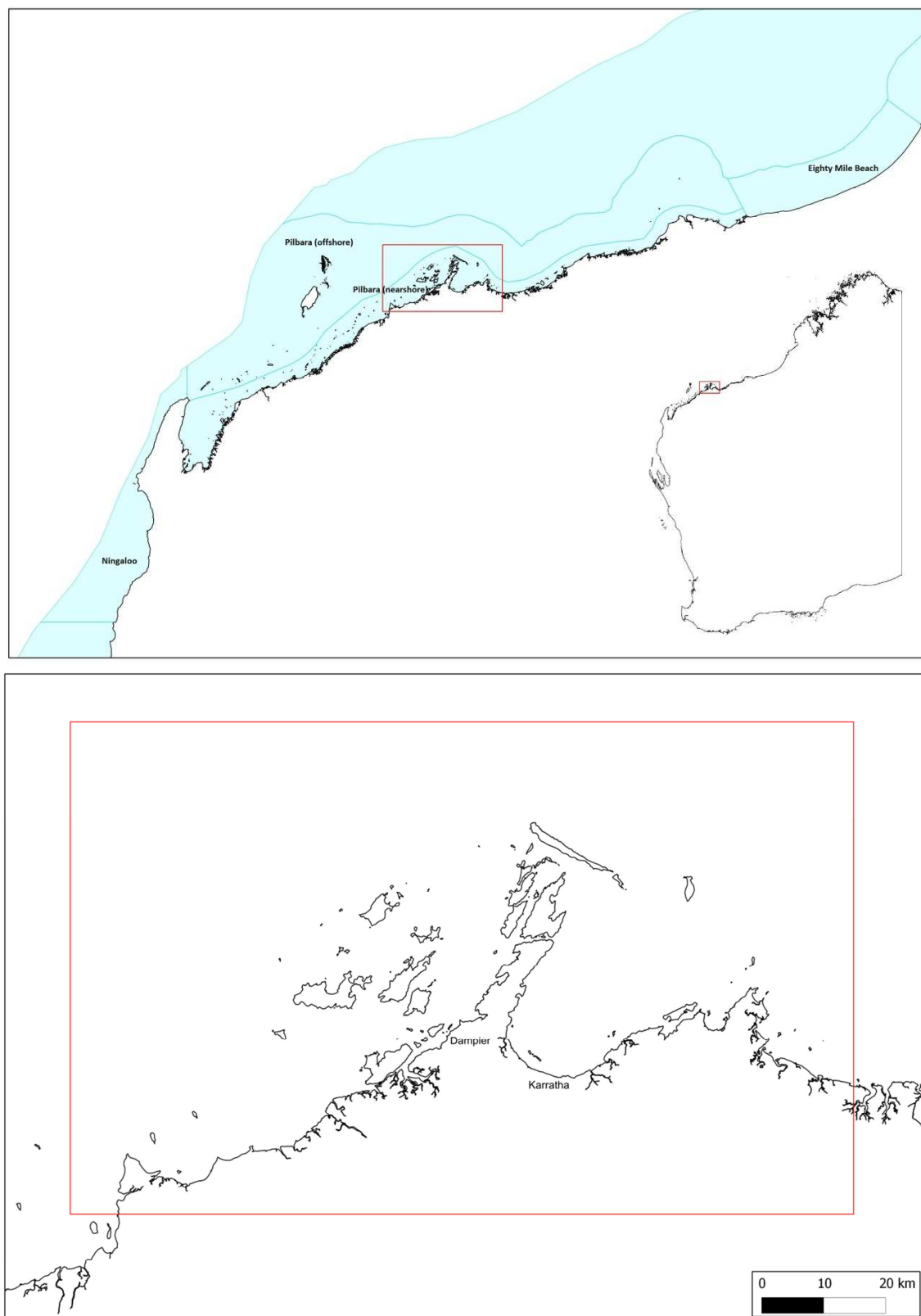
## Summary

The Dampier Archipelago is a unique and diverse marine system situated 1650 km north of Perth in Western Australia. This area is subject to intensive human usage including a major liquefied natural gas (LNG) plant as part of Woodside's Pluto development. As a requirement for using the Dampier Archipelago for processing and exporting LNG, Woodside has established the Pluto Offset 'D' consisting of four sub-projects. The aim of the first sub-project is to review, assess and summarise historical data relevant to the management of the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area. In order to achieve this objective the Department of Parks and Wildlife, with the assistance of advisors, and a technical reference group, collected and collated all historical marine research and monitoring data relating to the Dampier Archipelago. The technique involved treating each data set to a four step process of; context setting, prospecting, data mining and reporting.

A total of 871 datasets dating back to the early 1970s were identified. The majority of the datasets related to coral communities (175) and water quality (151), but also included many studies of invertebrates (53), mangroves (48) and finfish (30). The metadata for these datasets was spatially georeferenced and stored in a dedicated data catalogue. A significant component of the project was the design and implementation of an information management and reporting framework. The combined purpose of the data catalogue and the information management and reporting framework is to make the data discoverable and accessible, protect data from unauthorised access, preserve meaning and context of data, facilitate re-use of data and provide a safe and secure cataloguing and archiving solution for datasets. Currently, more than 650 datasets have been uploaded to the catalogue, which will be maintained by Parks and Wildlife. The information collected, collated and stored through this project will be used for the development of the remaining three Pluto offset 'D' projects and will inform the development of future research and monitoring programs and well as management plans.

# 1 Introduction

The Dampier Archipelago is situated adjacent to the port of Dampier, 1650 km north of Perth in the Pilbara Nearshore Marine Bioregion (IMCRA; Figure 1). The marine and coastal environment of the Dampier Archipelago/Cape Preston Region consists of offshore islands, intertidal and subtidal reefs, mangroves, macroalgal communities, seagrass communities and coral reefs. The area has been the focus of intense and growing anthropogenic pressure through industrial development and recreational use since the 1960s. Industrial works in the marine and coastal environment of the archipelago region include port development and operations, dredging, salt production, pearling and aquaculture and commercial fishing. Recreational use of the archipelago is also high, with the region supporting a high level of boat ownership and recreational fishing. This area is also rich in cultural heritage, with some of Australia's oldest and most diverse collections of Aboriginal rock engravings, quarries, middens, fish traps, rock shelters, ceremonial sites, artefact scatters, grinding patches and stone arrangements. Owing to the combined importance of natural and cultural heritage values in the area and the increasing anthropogenic pressures, this area has consistently been recognised as a priority for increased marine management and conservation. In 2005 an Indicative Management Plan (IMP) was released for the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area. This IMP proposed a range of management actions to protect the social and ecological values of the marine environment (Department of Conservation and Land Management 2005).



*Figure 1 Map of the Dampier Archipelago and its relative location. Upper; IMCRA zoning for the North-West showing position of Dampier relative to Western Australia, encompassing both Pilbara (nearshore and offshore) IMCRA regions. Lower; map showing the study area for this project.*



For the past 50 years, and especially over the last two decades, the Dampier Archipelago and adjacent coast has been the centre of major development works for resource and support industries. More than 20 major coastal or marine industrial developments have been built or are planned for this region.

The first significant marine development in the region was construction of the Port of Dampier, which was established in 1963 by Hamersley Iron, and has continued to expand since. A solar salt field and associated loading facilities were constructed in the 1970s. In 2000, facilities were upgraded to provide shelter for large vessels, as well as berthing and cargo handling facilities. There has also been construction of a desalination plant (2004), storage facilities (2004), a methanol plant (2004), power stations (2009), jetty additions and extensions (2006), wharf construction (2004), and shipping channel expansion (2003, 2007, 2008 and 2011). There have also been numerous upgrades to existing facilities, additional dredging programs and the expansion of supply and support industries. Recent developments include iron ore loading facilities at Cape Preston and the proposed Anketell port infrastructure at Dixon Island.

Woodside's Pluto LNG Project was developed to extract liquid natural gas from the Carnarvon Basin on the North West Shelf. Following discovery of the reserves in 2005 the development was approved in 2007 and first LNG processed in 2011. This project includes the extraction of gas, transport via a gas pipeline to the onshore facility on the Burrup Peninsula where the gas is processed and stored prior to export via port facilities. The construction of port facilities and shipping channels required a dredging program that removed 14 million cubic meters of sediment, which was acknowledged to potentially have a significant impact on the marine environment.

The Pluto LNG Project Offset 'D' was approved under Ministerial Approval Statement 757 (the statement; Appendix 1), which was published on 24 December 2007. Section 13 of the statement requires an offset package, outlined in schedule 6 of the statement, to be implemented by the proponent. A funding agreement signed on 20 January 2011 by Woodside Burrup Pty Ltd and the State of Western Australia defined the scope, terms and conditions for the Pluto LNG Project Offset 'D' – 'Research and monitoring consistent with the Indicative Management Plan for the Dampier Archipelago Marine Park'. Offset D is being completed through four projects:

- i. Review, assess and summarise historical data relevant to the management of the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area;*
- ii. Patterns and distribution of major marine communities (incl. key functional groups) and large marine fauna in the Dampier Archipelago/Cape Preston region;*
- iii. Patterns and trends in human usage of the marine environment in the Dampier Archipelago/Cape Preston Region; and*

- iv. *Establishment of a long-term reference sites for monitoring, evaluation and reporting.*

This report relates to project 'i' of the Pluto LNG Project Offset 'D'

The focus of work for Pluto LNG Project Offset 'D' is on implementing research and monitoring that is consistent with the IMP for the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area (proposed Dampier marine reserves). The IMP highlights that some aspects of the marine biodiversity in the proposed reserves are relatively well understood; while knowledge about environmental processes and existing pressures on values of these reserves is limited (Department of Conservation and Land Management 2005). Management strategies for scientific activity within the proposed reserves include the implementation of programs to provide for monitoring and assessment of ecological processes and the levels of human impacts.

## 1.1 Context

A considerable amount of marine environmental and social data has been collected by industry groups and government agencies in the Dampier Archipelago area since the late 1970s. This data was collected as part of industry development approvals processes, post-approval compliance monitoring programs, State and Commonwealth Government marine research and monitoring programs, university research programs and community projects. In 2009, the Minister for Environment appointed the Shared Environmental Assessment Knowledge Taskforce to design and implement an environmental data library to ensure that all data is stored and made publicly available through an easily accessible portal, including information already captured by Government. Since 2012 this responsibility has been held by the Department of Mines and Petroleum. Through this process the WA Government has developed a prototype data library with the aim of digitising and storing reports and presenting metadata that will be accessible to the public, researchers and industry. This project also aims to link with existing environmental databases that are managed by other Government departments. To align with this objective, the focus of this Pluto Offset 'D' project is to develop a Departmental data management system which meets the same objectives.

The research objectives identified in the IMP for the proposed Dampier marine reserves include:

- To obtain an appropriate understanding of the biodiversity and key ecological and social processes within the proposed reserves; and
- To promote ecological and social research in the proposed reserves that improves knowledge of the reserves and the technical basis for management decisions.

The IMP also identifies the strategies and targets by which these objectives can be achieved.

The IMP also identifies the monitoring objectives as:

- To monitor the key ecological values at risk and human usage in the proposed reserves.
- To promote ecological and social monitoring in the proposed reserves that can detect changes to ecological values and aid management decisions.

Management strategies for the proposed Dampier marine reserves include the implementation of programs to monitor and report on the condition of key ecological values and the level of impact on these values from human activities.

This report summarises the process of identifying, assessing and collating existing datasets relevant to the management of the proposed marine reserves. Information in this report will be used to inform the other three projects by informing the establishment of long-term monitoring sites, enabling the assessment of past and current trends in biodiversity asset condition, understanding the pressures acting on these assets, and the efficiency and effectiveness of management responses to these pressures. These data have been incorporated into a data catalogue to secure future access to all information. See section 3.3 for further information and access details.

## 1.2 Project aims

The primary and secondary aims for Pluto LNG Offset 'D' Project 'i' are:

### **Primary**

- i. To identify, assess and collate existing biophysical and social datasets relevant to values listed in the IMP for the proposed Dampier marine reserves;
- ii. Construct historical time-series of relevance to the conservation of marine biodiversity and the management of human use of the proposed Dampier marine reserves;
- iii. To ensure data is summarised, archived, made accessible and broadly presented to Government, industry and the local community; and
- iv. To assist the design and implementation of Pluto LNG Project Offset 'D' projects (ii), (iii) and (iv).

### **Secondary**

- v. To promote the standardization and uptake of historical time-series development procedures in Parks and Wildlife and elsewhere;
- vi. To promote integration of past, current and future research and monitoring programs to ensure investment delivers effective outputs that address management requirements; and
- vii. Present recommendations on further actions required to access or utilise key datasets.

## 2 Methodology

Parks and Wildlife's Marine Science Program is preparing guidelines to provide a generic step by step process for creating historical time-series datasets and assessing them for suitability for use in marine monitoring. In these guidelines, four stages are defined for establishing a historical time-series:

- 'Context setting' to provide the background; define assets and management objective; and note relevant condition and pressure indicators to guide the process.
- 'Prospecting' potential datasets to identify and acquire potential datasets for use in the construction of the suite of historical time-series.
- 'Data Mining' of suitable datasets to discern the quality, suitability, rank and weighting of historical datasets selected. Typically data will be compiled from various studies where the objective, sites and methods of studies may differ.
- 'Reporting' where a 'Quality Index' is used to report the 'Pedigree' of the resulting time-series. This stage considers the suitability of parameters considered in the first three major stages described above.

Whilst the variability in design, accuracy, methods and approaches make statistical analysis problematic, past studies are collected as they provide important context that inform the future priorities and design of research and monitoring.

### 2.1 Context setting

Setting the context for the project acted to focus the data identification, review and steps for assessment. Given the large amounts of data that exist in this area, this project was not intended to capture all data within the area but rather to focus on the most relevant and applicable data for the future management of the proposed Dampier marine reserves.

Potential stakeholders or organisations which were believed to have worked in, or hold data from, the Dampier region were approached to form a technical reference group. The technical reference group included experts from a range of government and industry organisations and comprised representatives from:

- Department of Parks and Wildlife, Marine Science Program.
- Department of Parks and Wildlife, Pilbara Region.
- Woodside Energy Ltd.
- Pilbara Ports Authority.
- WA Museum.
- Department of Fisheries.
- Australian Institute of Marine Science.
- Office of the Environmental Protection Authority.
- Commonwealth Scientific and Industrial Research Organisation.
- Other industry stakeholders that work in the area (e.g. Rio Tinto).
- Industry consultants (e.g. SKM and MScience).

The technical reference group provided datasets, insight into work which had been undertaken in the Dampier region, and sources where data may be available. Woodside, PPA and OEPA, along with Rio Tinto and M-Science Pty Ltd, have provided significant input to this project. A broad study area was defined to set geographical constraints during the data prospecting stage and focus the project. This focus area encompassed the proposed Dampier marine reserves as well as adjacent areas of the nearshore Pilbara IMCRA zone that contained the same values and were known to be subject to industry related research and monitoring.

Further contextual detail was provided through identifying a prioritised list of marine assets to focus data prospecting. The selection process identifying these assets was previously undertaken during the drafting of the IMP, and thus, the data prospecting for this project was largely focused on the Key Performance Indicators (KPIs) listed in the IMP (Table 1). While only limited searches for non-KPI assets were carried out, any applicable data found during KPI focused searches was stored and data based.

Parks and Wildlife's WAMMP is progressively developing a suite of specific, asset-based condition and pressure metrics to be used for systematic monitoring of ecological asset health (and identified pressures) across Western Australian marine parks and reserves. Where available, these specific metrics were also used to refine the search parameters during the data prospecting stage (Table 1).

*Table 1 Summary table of assets and metrics*

<b>Assets</b>	<b>Asset Condition Metrics</b>	<b>Pressure Metrics</b>
Coral Communities	% coral cover Community composition Coral recruitment Colony size frequency Coral bleaching Coral disease	Water temperature Predator abundance Sedimentation / turbidity
Finfish	Community composition Community size structure Recruitment	Water temperature Habitat change Fishing
Invertebrates	Abundance Diversity	
Intertidal Sand and Mudflat Communities	Abundance Diversity	
Subtidal Soft-bottom Communities	Abundance Diversity	
Mangrove Communities	Spatial extent Canopy cover Tree density Foliage condition Mortality	Salinity Temperature Clearing

Assets	Asset Condition Metrics	Pressure Metrics
Turtles	Strandings/incidents	Island visitors Boat use/ownership (proxy for vessel interactions)
Water Quality	Turbidity Light attenuation Sedimentation TBT/metals N (all compounds) P (all compounds) Chlorophyll a	Litter Water temperature Hydrocarbons

## 2.2 Data Prospecting

This step focused on establishing what research and monitoring has been undertaken, and then assessing the relevance of that data to management requirements for the proposed reserves. Lists of research and monitoring projects undertaken in the study area were compiled in consultation with the technical reference group and expert stakeholders who had direct experience in the area. Broad web, library and OEPA based searches were also undertaken to identify potential datasets of use.

A significant portion of applicable data was held by industry and consultancies. In order to attempt to identify documents containing relevant datasets, and source them, OEPA hard copy files were searched to identify priority research and monitoring programs associated with approved industrial proposals.

This initial collection of metadata was then prioritised based on data relevance (asset/metric) and location, and high priority datasets were requested from custodians. In its simplest form data priority was assigned a ranking based on both spatial and temporal characteristics (see Table 2). The methodology of data collection or monitoring technique was also considered, with data that potentially aligned with future monitoring work being given a higher priority.

*Table 2 Rationale for priority rating datasets. Both spatial and temporal results are summed for a total rating.*

Priority Rating	Rationale	Score
Spatial		
High	Recognised survey site within proposed marine reserve boundaries	3
Medium	Within proposed marine park boundaries	2
Low	In the focus area (defined in Figure 1)	1
Temporal		
High	Long term study/monitoring program revisiting same site(s) over time	3
Medium	Study/monitoring program with repeat visit to site(s)	2
Low	Single site visit survey	1

## 2.3 Data Mining

Once priority datasets were identified, requests were sent to proponents, and in some cases consultants, to access the data. All prioritized datasets received during the project were assessed and meta-data were extracted. This included:

- metric and presentation;
- collection methods;
- spatial relevancy, extent and replication; and
- temporal relevance and replication in sampling.

To inform future management this will include a summary of the data available, its general suitability and a basic assessment of its capacity for providing a time-series of change, and where possible, a historical time-series dataset.

## 2.4 Reporting

As part of Pluto Offset 'D' a dedicated Marine Science Information Management Team created a detailed data catalogue for storage of all information collected in this project. A full bibliography has been stored in a designated library using the Zotero management software, allowing access to all reports identified in the project. This includes a quick reference to PDF copies of the reports.

### 3 Summary of Findings

The marine and coastal environment of the Dampier Archipelago/Cape Preston region is characterised by 42 islands, intertidal and subtidal reefs, mangroves, macroalgal and seagrass communities and coral reefs. The long-term use of this area as an industrial hub has resulted in numerous, and often long-term, research and monitoring programs being implemented in the area. Consequently, there has been a large number of datasets collected over the last four decades in the area.

The results of the work collating the relevant datasets for this study are focussed within the pre-established study area and on prioritised assets highlighted as KPIs in the IMP.

#### 3.1 Aim P(i)

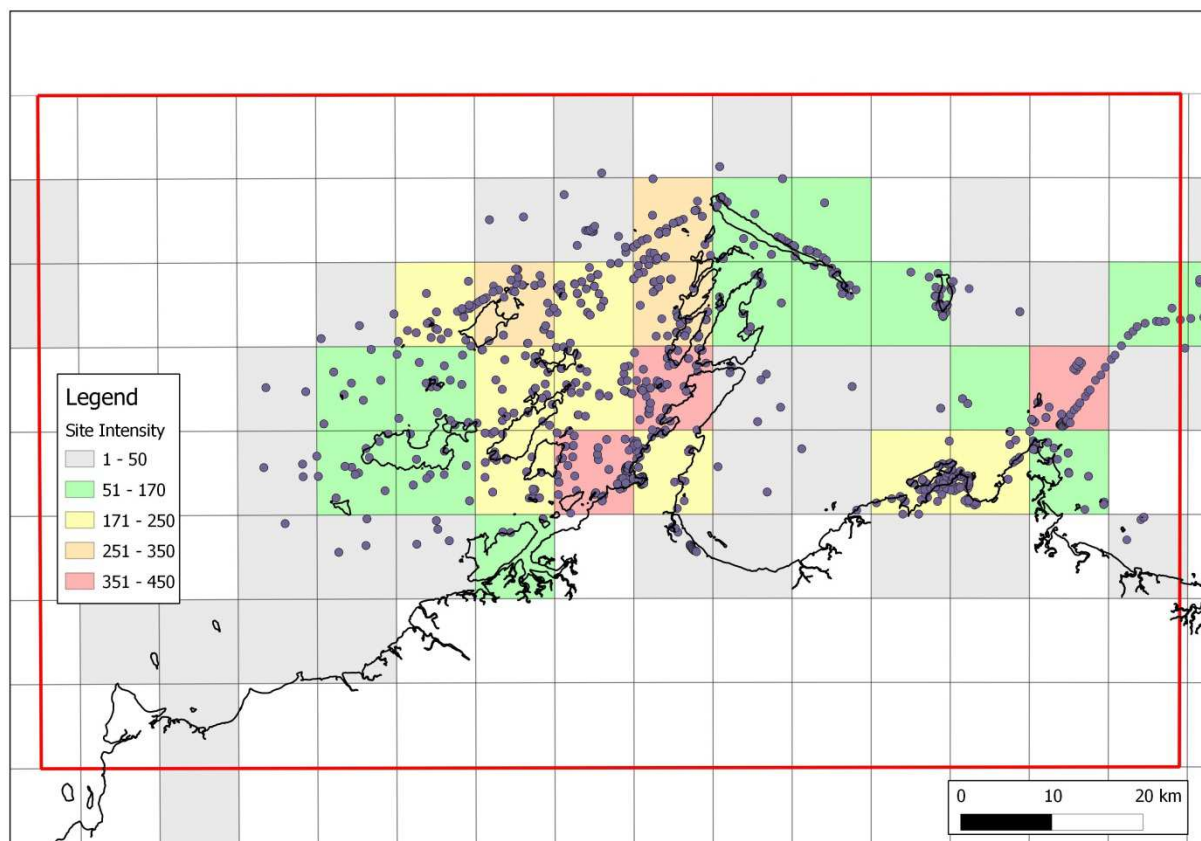
**To identify, assess and collate existing biophysical and social datasets relevant to values listed in the IMP for the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.**

This was the primary aim and underpins much of the rest of this project, as well as providing the information platform for following projects in the Pluto Offset 'D' program.

A total of 871 datasets were identified during this work. Comprehensive metadata was not available for all of the datasets, which precluded the use of all data in subsequent analyses. Datasets that, for example, lacked positional information could not be displayed on maps, while those lacking sampling dates could not be included in temporal representations.

The highest spatial intensity of research and monitoring, as measured by the density of sampling sites, was mostly concentrated around areas of industrial development, such as the western side of the Burrup Peninsula and off Cape Lambert (Figure 2). Relatively high site densities also occurred around some of the major islands, such as Rosemary Island and west of Gidley and Legendre Islands.





*Figure 2 Map showing location of all datasets collected during this project (grey circles). Overlaid is a summary grid showing site intensity in a 10x10 km matrix. The study area is outlined in red. Not all datasets are represented here as some lacked exact positional information.*

Some of the major contributors of datasets were industry sources such as Woodside, Rio Tinto, the Dampier Port Authority and Dampier Salt, who have completed long running extensive environmental studies, often as compliance requirements. In most cases these organisations contracted consultants to undertake the work, and some major consulting contributors include MScience, SKM, Astron and LeProvost. Some commonwealth government and state agencies carrying out independent work in the area also supplied datasets, including; AIMS, CALM/DEC/Parks and Wildlife, DoF and the Western Australian Museum, as well as universities. Some of the major organisations undertaking projects in the Dampier are displayed in Table 3.

*Table 3 List of the major organisations who have carried out research/monitoring in the study area. A full list of acronyms and their definitions can be found on page vii.*

Contributors	
AECOM/URS	Hamersley Iron
Apache Energy	Integrated Resource Consultants
Asia Pacific Applied Science Solutions	LeProvost
Astron Environmental	Mermaid Marine
AIMS	Mineralogy Pty Ltd
Australian National University	MScience
Australian Premium Iron	Murex Consultants
Australian United Steel Industry	North West Shelf Joint Environmental Management Study
Basset	Oceanica
Biota Environmental Sciences	OEPA
Blue Planet Marine	Pendoley Environmental
CALM/DEC/Parks and Wildlife	Pilbara Iron Pty Ltd
Centre for Marine Futures	QLD Environmental Protection Agency
CITIC Pacific Mining	Rio Tinto
Conservation WA	Robe River Iron Associates
Commonwealth Scientific and Industrial Research Organisation	SKM
PPA	TD Meager and Associates
Dampier Salt Limited	Water Corporation
Department of Environment, Water, Heritage and the Arts	WAM
Department of Water	Woodside Energy Ltd
Ecologia	Worley Parsons

An assessment of the temporal spread of datasets, shows peaks in abundance of data collection correlating well with the timing of major human activities occurring in the region. In most cases an increase in dataset frequency tends to coincide with major works, which accompany elevated levels of shipping, dredging and construction. For example, the majority of Woodside's development occurred between 2000 and 2010 and as a result there was an increase in monitoring data from this time (Table 4). Other activities have also resulted in increased data collection over time. In the late 1990s, for example, the Western Australian Museum was funded to undertake a large scale marine biological survey of the area which made a significant contribution to records of the area. Overall, there has been a steady increase in the creation of datasets since the early 1970s, reflecting the increasing use of the area with related pressures, and/or more rigorous compliance requirements imposed on developments.

*Table 4 Temporal representation of research and monitoring carried out in the study area. This is divided into individual Key Performance Indicators (KPIs) as identified in the IMP.*

	1970-74	1975-80	1981-84	1985-90	1991-94	1995-00	2001-04	2005-10	2011-
Coral	4	5	9	10	5	10	40	74	19
Fish	1	4	6	1	2	1	8	14	1
Inverts	1	4	5	2	3	4	32	10	7
ISMC	0	1	8	6	6	3	4	8	6
Mangroves	0	2	10	11	9	8	16	21	14
SSBC	0	2	1	0	2	1	5	11	9
Turtles	0	1	2	8	11	12	10	30	16
Water quality	1	2	13	8	9	15	37	64	18
Non-KPI	0	5	6	8	12	17	26	66	28
<b>Total</b>	<b>7</b>	<b>26</b>	<b>60</b>	<b>54</b>	<b>59</b>	<b>71</b>	<b>178</b>	<b>298</b>	<b>118</b>

After 2010, the number of datasets declined somewhat (Table 4). Not all data requested has been represented here as not all identified studies/datasets have been received. Although it is envisaged that most datasets have been identified and accounted for, it is likely that additional datasets will be uncovered in the future.

### 3.2 Aim P(ii):

**Construct historical time-series of relevance to the conservation of the marine biodiversity and the management of human use of the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area**

This project focused on collecting datasets for the KPIs listed in the IMP and prioritizing them for data extraction.

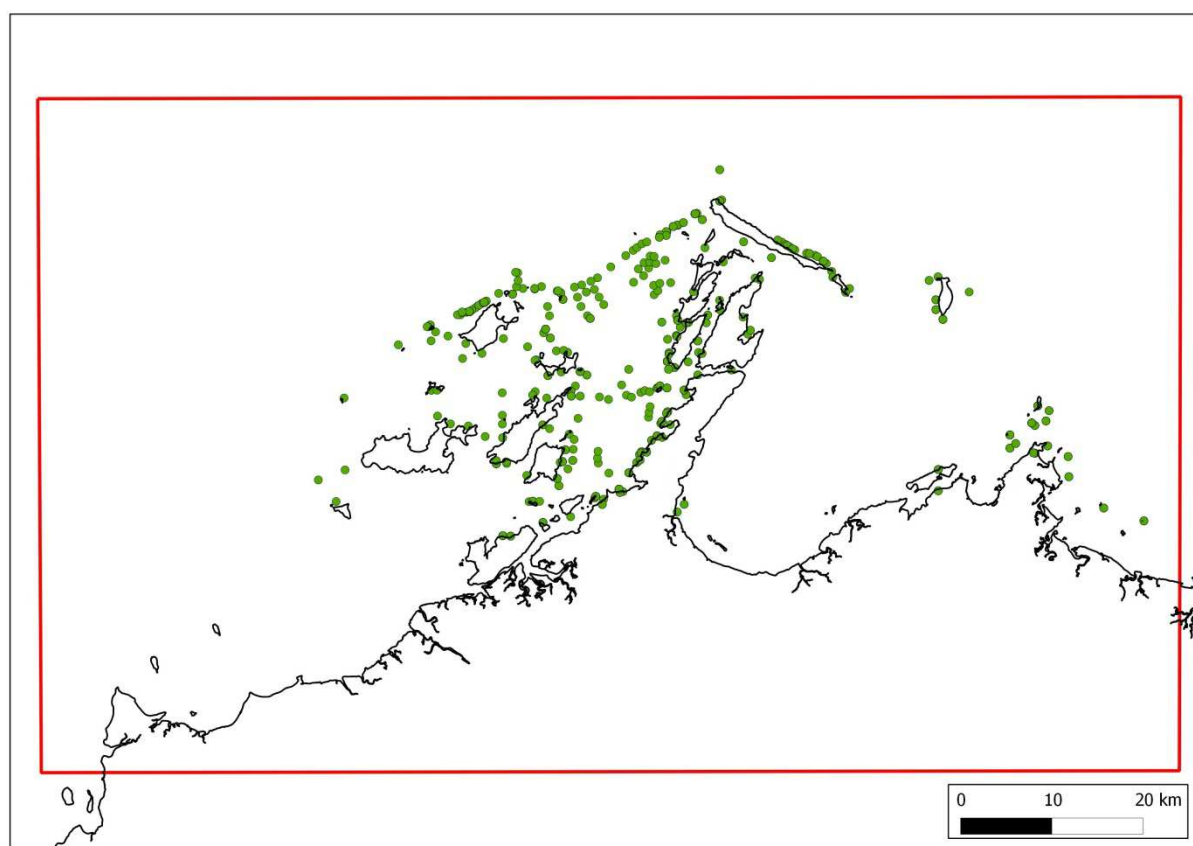
Table 5 shows the total number of datasets collected to date for each asset.

*Table 5 Total number of datasets identified for each asset, catagorised according to KPIs listed in the IMP*

<b>Assets</b>	<b>Datasets identified</b>
Coral Communities	175
Finfish	30
Invertebrates	53
Intertidal Sand and Mudflat Communities	13
Subtidal Soft-bottom Communities	23
Mangrove Communities	48
Turtles	76
Water Quality	151
Non-KPIs	146

### 3.2.1 Coral

Coral communities are widely distributed throughout the Dampier Archipelago with the most diverse coral areas being found on the seaward slopes of Delambre Island, Hamersley Shoal, Sailfish Reef, Kendrew Island and north-west Enderby Island (Griffith 1998). The area is the second most diverse region for hard corals in Western Australia, with coral reef habitats representing 8% (approx. 18300 ha) of the major marine habitats and comprising 229 scleractinian coral species from 57 genera (Griffith 1998). This high diversity of corals may be attributed to the variety of substrates and oceanographic conditions in the proposed reserves, which range from exposed reefs with high wave action, clear water and low sediment deposition rates on the seaward coasts of the outer islands, to the sheltered areas further inshore with high sediment deposition rates and turbid waters (Griffith 1998; Department of Conservation and Land Management 2005).



*Figure 3 Location of all coral datasets. The study area is outlined in red. Only datasets with adequate location information are included.*

For coral, 210 datasets were identified as potentially useful through the initial data search (Figure 3; Appendix 2 Table 1). Of these datasets 169 were assessed as likely to contain data on specific metrics of interest (Table 6). At present, 175 datasets have been collected. In the 1970s and 80s, coral data was limited, but in the late 1990s and 2000s there was an increase in the number of projects being undertaken, with at least 93 between 2005 and 2009. Of the datasets collected for coral, 90.2% of studies came from industry sources while only 9.8% came from non-industry sources, mainly government. Therefore, it is likely that the increase in

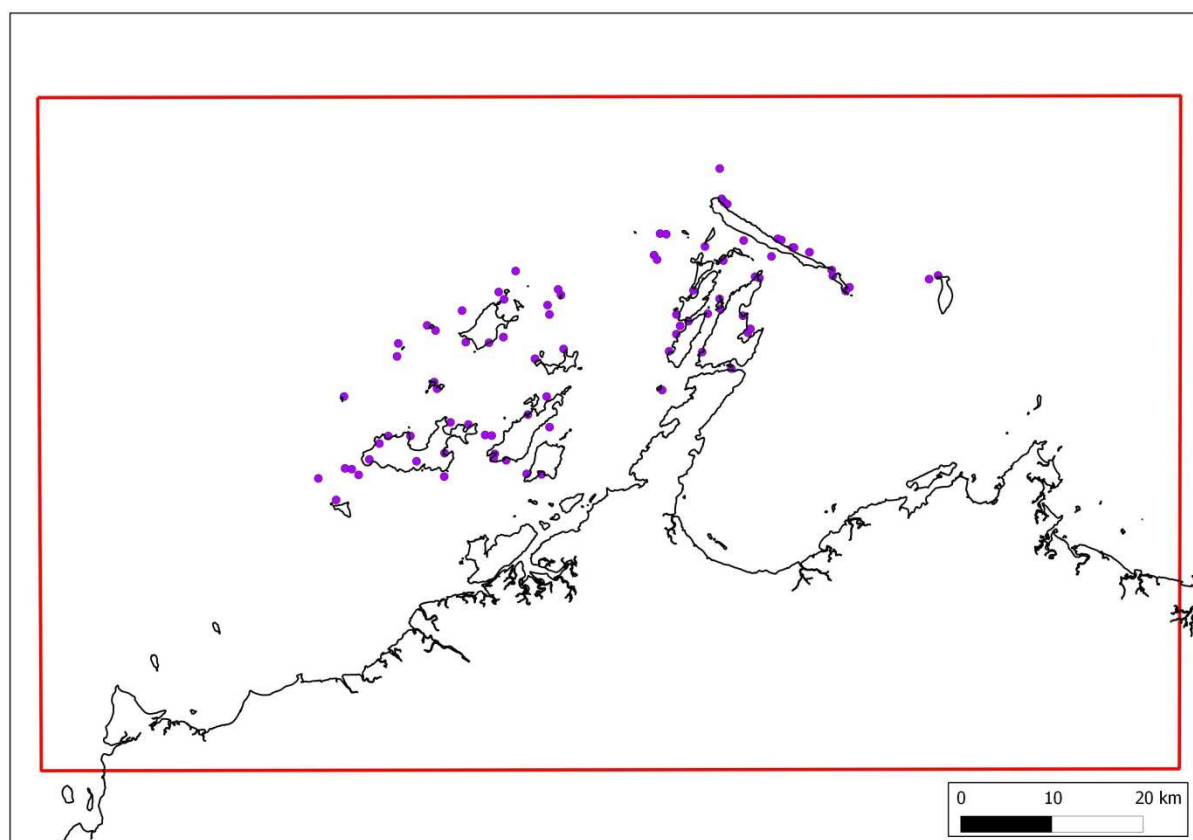
projects with time is associated with increasing industrial development and increased environmental monitoring requirements.

*Table 6 Priority rankings for coral community datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2).*

Priority	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-	Totals
High (>4)	1	0	0	5	3	3	16	35	6	69
Medium (3-4)	1	2	4	4	4	3	25	44	13	100
Low (<3)	0	0	0	0	0	2	0	2	2	6
Requested	0	0	0	1	4	3	10	12	5	35

### 3.2.2 Finfish

In surveys carried out in 1998-2002 the Western Australian Museum recorded 736 fish species in the Dampier Region (Hutchins 2001; Hutchins 2004). Anthropogenic pressures on fishes in the Dampier Archipelago are likely to be high. The area is very popular for fishing and the adjacent centre of Karratha has high levels of boat ownership (Department of Conservation and Land Management 2005). There are also several major commercial fisheries as well as 80% of Western Australia's aquarium fishery (Department of Fisheries 2013).



*Figure 4 Location of all finfish datasets. The study area is outlined in red. Only datasets with adequate location information are included.*

Thirty finfish datasets were identified as potentially useful through the initial data search (Figure 4; Appendix 3 Table 2). Of these datasets 25 were assessed as likely to contain data on specific metrics of interest (Table 7). All datasets have been collected and are under development (from available reports/papers). Data has been collected in every time period from the beginning of the 1970s, with the most data collected between 2005 and 2009. The majority of data relating to finfish populations was collected by the Western Australian Museum, and 60% of finfish datasets come from non-industry sources. It is worth noting that no datasets were discovered that sampled finfish along the mainland coast, this likely reflects the high turbidity in this area and the difficulty for surveying fish in these conditions.

*Table 7 Priority rankings for finfish datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2)*

Priority	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-	Totals
High (>4)	0	0	0	0	0	0	0	1	0	1
Medium (3-4)	1	2	4	2	2	1	3	8	1	24
Low (<3)	0	1	1	0	0	0	2	1	0	5
Requested	0	0	0	0	0	0	0	0	0	0

### 3.2.3 Invertebrates

The invertebrate fauna of the Dampier primarily comprises tropical species, which are common throughout the Indo-West Pacific region (Slack-Smith and Bryce 2004). Knowledge of the invertebrate fauna of the Dampier region is incomplete; however, surveys by the Western Australian Museum have collated considerable species lists (Department of Conservation and Land Management 2005). The WAM surveys recorded over 1,227 mollusc species, including 5 regional endemics (Slack-Smith and Bryce 2004), 438 species of crustacean (Hewitt 2004), 275 species of sponge (Fromont 1998), and 286 echinoderm species (Marsh and Morrison 2004).

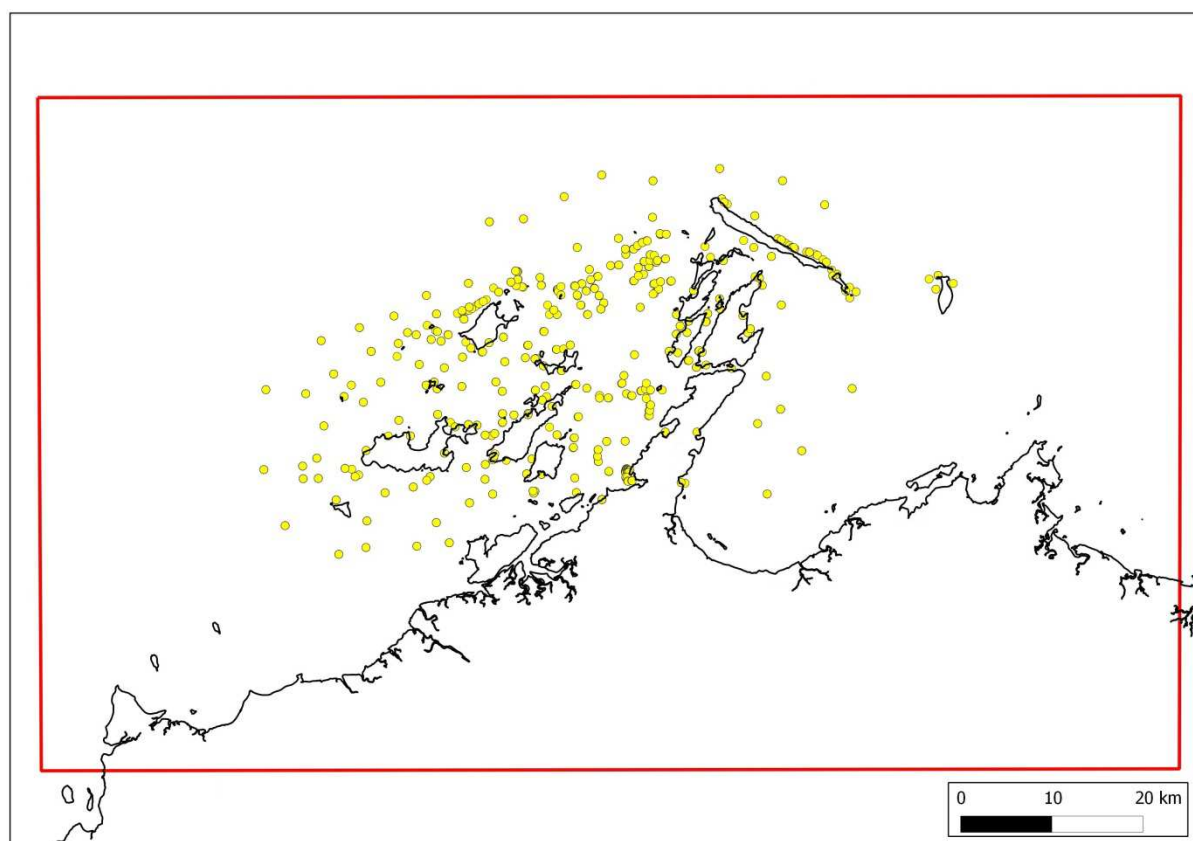


Figure 5 Location of all invertebrate datasets. The study area is outlined in red. Only datasets with adequate location information are included.

For invertebrates, 53 datasets were identified as potentially useful through the initial data search (Figure 5; Appendix 2 Table 3). Of these datasets 49 were assessed as likely to contain data on specific metrics of interest (Table 8). All datasets have been collected and data is being extracted and collated (Gordon 1983)(from available reports/papers). A considerable number of datasets were discovered from 2000-2004. More invertebrate datasets were collected by non-industry sources (57%) than were collected by industry. There are very few studies undertaken along the mainland shore, despite knowledge of the existence of extensive intertidal zones and sponge gardens.

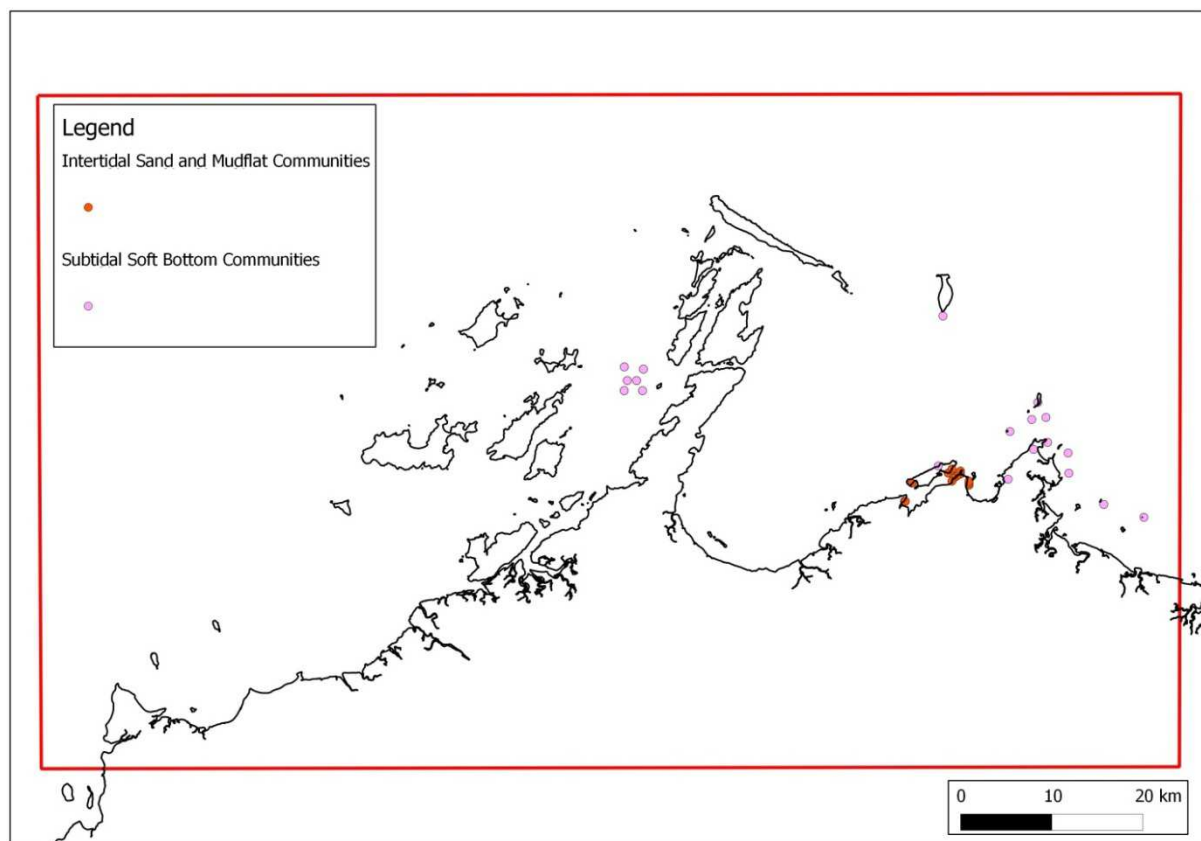
Table 8 Priority rankings for invertebrate datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2)

Priority	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-	Totals
High (>4)	0	2	2	0	2	2	2	0	0	10
Medium (3-4)	0	0	0	0	0	2	23	9	5	39
Low (<3)	0	0	0	1	0	0	1	2	0	4
Requested	0	0	0	0	0	0	0	0	0	0



### 3.2.4 Intertidal Sand & Mudflat Communities and Subtidal Soft-bottom Communities

Intertidal sand and mudflat communities (ISMC) cover approximately 14% of the proposed reserve, and generally occur in sheltered, relatively low energy environments. Subtidal soft-bottom communities (SSBC) consist of silt and sand and comprise 57% of the major marine habitat in the proposed Dampier marine reserves. Although typically bare, these communities can also support seasonal patches of seagrass. Sediments can range from silt to sand and support a rich variety of burrowing and surface dwelling fauna. Both communities considered of high conservation value (Department of Conservation and Land Management 2005).



*Figure 6 Location of all ISMC (Orange) and SSBC (Pink) datasets. The study area is outlined in red. Only datasets with adequate location information are included.*

There were 13 datasets identified for ISMC and 23 for SSBC (Figure 6; Appendix 2 Table 4 and 5), and of these 12 and 10 datasets, respectively, were likely to contain data of interest (Table 9). At present the majority of datasets for ISMC and SSBC have come from industry (72% and 87% respectively). All datasets for ISMC have been collected and are under development and one is still outstanding for SSBC. Data for these assets is spatially and temporally limited, despite the habitat covering a significant portion of the proposed marine reserves. This is likely to be the result of this habitat type being considered to be less sensitive to disturbance from industrial development and as such a less important indicator of change.

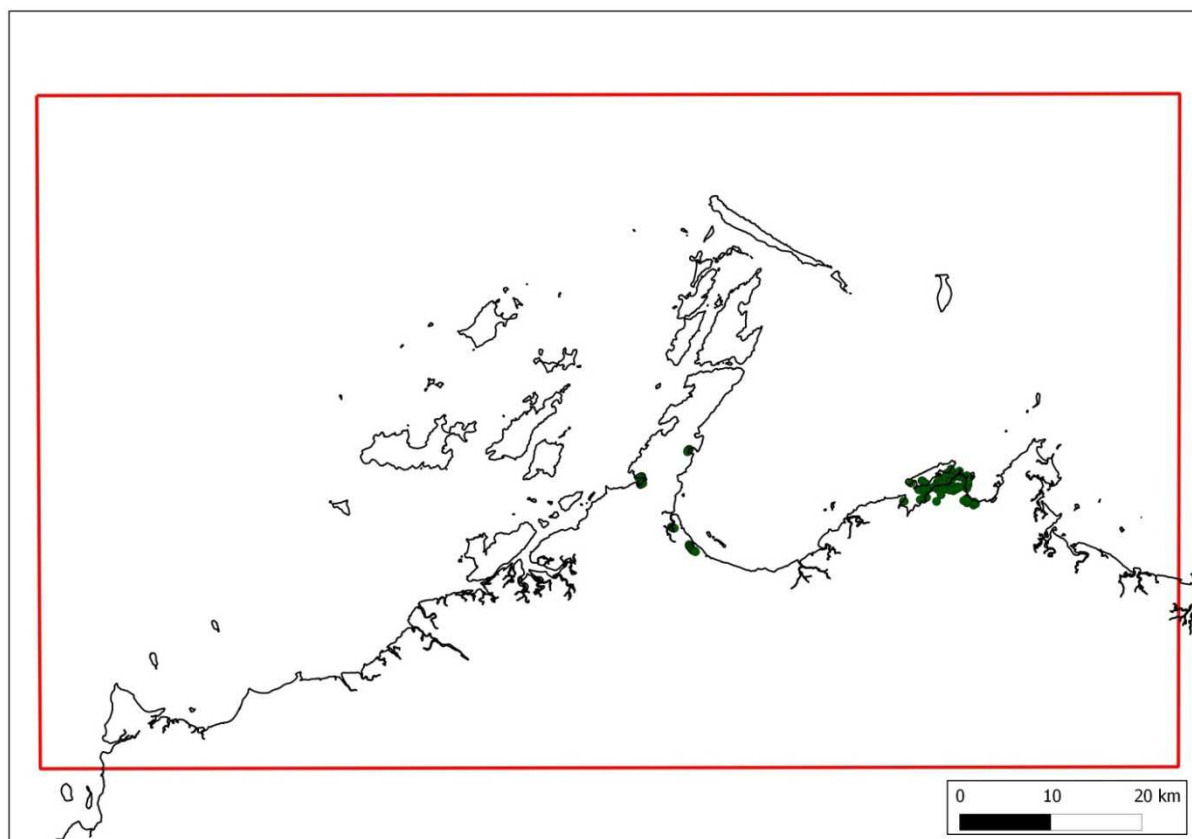


*Table 9 Priority rankings for ISMC and SSBC datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2)*

Priority	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-	Totals
<b>Intertidal Sand &amp; Mudflat Communities</b>										
High (>4)	0	0	0	0	0	0	0	0	0	0
Medium (3-4)	0	1	4	3	0	0	1	1	2	12
Low (<3)	0	1	0	0	0	0	0	0	0	1
Requested	0	0	0	0	0	0	0	0	0	0
<b>Subtidal Soft-bottom Communities</b>										
High (>4)	0	0	0	0	2	0	0	0	1	3
Medium (3-4)	0	0	0	0	0	0	4	6	2	7
Low (<3)	0	2	2	0	0	0	0	5	3	12
Requested	0	0	0	0	0	0	0	0	0	1

### 3.2.5 Mangroves

Over 50% of the mainland shore is lined with complex mangal habitats, comprising six mangrove species that are considered to be of international significance (Semeniuk 1993). Extensive mangrove stands can be found along to coast of Regnard Bay, the Maitland River, King Bay, Nickol Bay and many of the offshore islands. Mangrove communities account for around 3% of the proposed marine reserves (Department of Conservation and Land Management 2005). Early studies by Woodside and Dampier Salt highlight the biological importance of these communities (Gordon 1983). There was a significant loss of mangrove communities associated with the development of the Dampier Salt facility in 1972.



*Figure 7 Location of all mangrove community datasets. The study area is outlined in red. Only datasets with adequate location information are included.*

For mangrove communities, 48 datasets were identified as potentially useful through the initial data search (Figure 7; Appendix 2 Table 6). Of these datasets 41 were assessed as likely to contain data on specific metrics of interest (Table 10). All but four datasets have been collected and are under development (from available reports/papers). No data was discovered from the 1970s but since then there has been consistent data collection, with the most sampling occurring between 2000 and 2004. The majority of datasets were collected from industry sources (85%), and most of the work has been carried out around Dixon Island.

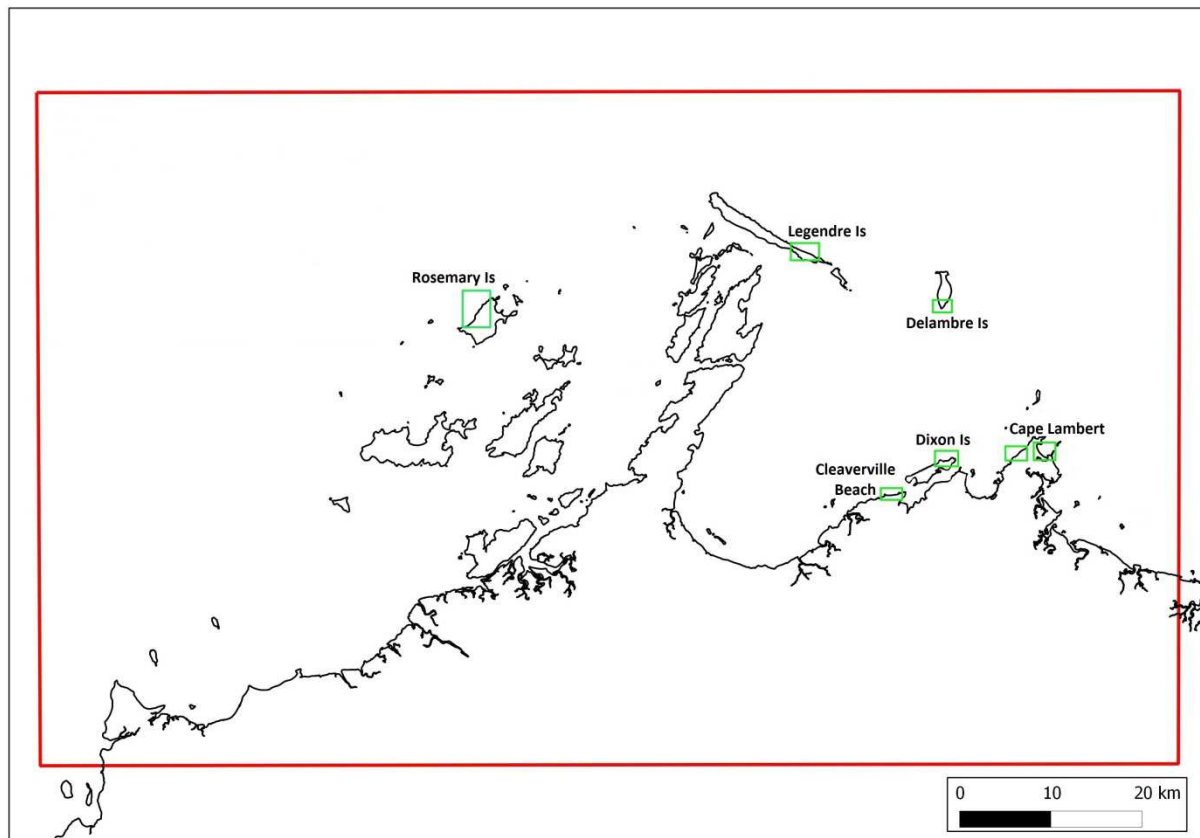
In addition to the data presented here, an analysis of historical aerial photography was undertaken. This analysis identified a series of suitable images for use in developing a historical time-series dataset of mangrove extent for selected sites.

*Table 10 Priority rankings for mangrove community datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2)*

Priority	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-	Totals
High (>4)	0	0	4	2	2	2	3	1	1	15
Medium (3-4)	0	0	6	3	0	0	7	7	3	26
Low (<3)	0	0	0	0	0	0	0	2	1	3
Requested	0	0	0	3	0	0	1	0	0	4

### 3.2.6 Turtles

Five of the seven globally recognised turtle species have been recorded within the proposed reserves. Not only is this area important for transiting turtles but a number of islands and beaches in the area are important turtle nesting sites (Department of Conservation and Land Management 2005). Parks and Wildlife supports significant turtle research and monitoring, and has managed a turtle related database since 1986-87. The principle turtle research and monitoring in the Dampier has occurred at Rosemary Island (Figure 8). Rosemary Island hawksbill, and to a lesser extent flatback and green turtles, have been tagged and monitored regularly since the 1986-87 season by Parks and Wildlife. Also since 2005, flatback turtles have been tagged and monitored at Cape Lambert, primarily by Rio Tinto. The Cape Lambert project was extended to include Delambre and Legendre Islands in 2008.



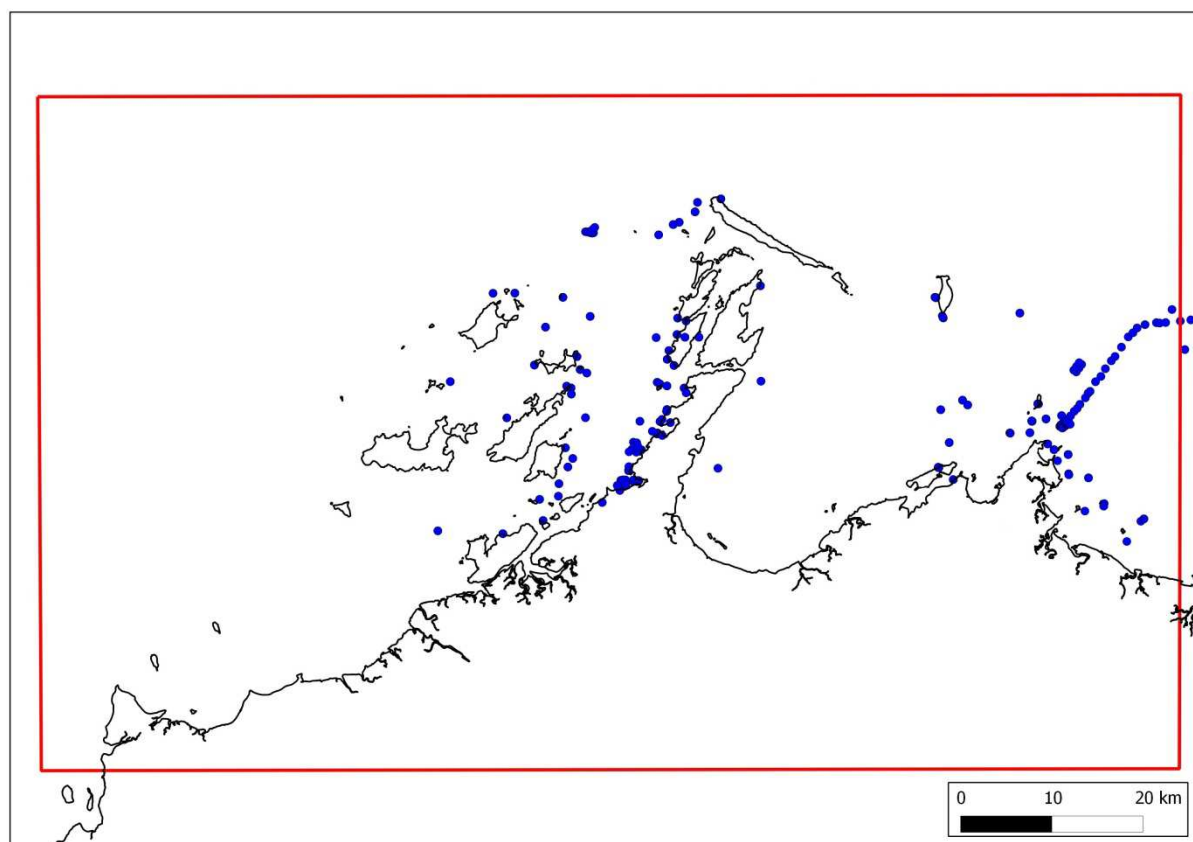
*Figure 8 Location of turtle nesting surveys undertaken in the region. The study area is outlined in red.*

### 3.2.7 Water quality

Water quality is one of the most data rich assets in the study area, and can be categorised as an asset with value to the management of a park, as well as pressure acting on other assets. Water is the medium that transports asset propagules/larvae, which is critical for connectivity. The physiochemical properties of water regulate asset distribution and abundance patterns. But water also transports chemicals and has physical attributes that are potential stressors for assets, underlining the importance of collecting and collating data for monitoring water quality. Due to the significance and varied roles each water quality parameter plays in marine systems, more detailed results are presented here. This project discovered datasets encompassing a wide range of water quality parameters but the main results were for:

- Turbidity – sampling by Dampier Port Authority, ChEMMS, Woodside, LeProvost, TD Meagher, MScience and more.
- Hydrocarbons - ChEMMS program compiled a lengthy time-series of hydrocarbons in sediment and oysters, also Woodside and Dampier Port Authority have ongoing monitoring that measures for hydrocarbons
- Water Temperature – Consistent datasets dating back to the late 1990s with Dampier Port Authority, Woodside and Rio Tinto

- Wave height – Potential for historically modelled wave data, as well as Dampier Port Authority and Woodside.



*Figure 9 Location of all water quality datasets. The study area is outlined in red. Only datasets with adequate location information are included.*

The highest number of datasets was discovered for water quality, with 151 datasets identified as potentially useful through the initial data search (Figure 9; Appendix 2 Table 7). Of these datasets 129 were assessed as likely to contain data on specific metrics of interest (Table 11). All but nine datasets have been collected and are data is being extracted and collated (from available reports/papers). The majority of data was collected between 2005 and 2009, and no data were collected in the 1970s. More than 70% of datasets were collected by industry sources.

*Table 11 Priority rankings for water quality datasets within each time period of sampling. The assigned value is a combination of spatial and temporal ranking (Table 2)*

Priority	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-	Totals
High (>4)	0	0	4	4	4	0	2	14	5	33
Medium (>2)	0	0	15	1	1	1	17	56	5	96
Low (<3)	0	0	3	1	1	0	0	8	0	13
Requested	0	0	3	1	1	0	0	3	1	9

### 3.2.8 Non-KPIs

The IMP also incorporates a series of Non-KPI assets, and their conservation is a management objective of the proposed marine reserves. Other marine communities, encountered during data prospecting (Table 12; Appendix 2 Table 8) include:

- Geomorphology
- Sediment quality
- Macroalgal and seagrass communities
- Rocky shore communities
- Marine Mammals (cetaceans and dugongs)
- Seabirds and shorebirds

A total of 146 datasets were encountered that contained information about non-KPI assets (Table 12).

*Table 12 List of other asset datasets discovered during the project which were not listed as KPIs in the IMP*

Asset	1970-1974	1974-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-	Total
Geomorphology	0	0	1	0	1	0	0	0	0	2
Sediment quality	0	0	3	4	3	3	7	15	1	36
Macroalgae and seagrass communities	0	2	1	1	1	4	7	15	3	34
Rocky shore communities	0	0	1	2	2	2	7	1	0	15
Marine mammals (cetaceans)	0	2	1	1	3	5	4	12	2	30
Marine mammals (dugongs)	0	0	1	2	0	2	5	7	1	18
Seabirds	0	1	0	1	2	2	3	1	1	11
<b>Total</b>	<b>0</b>	<b>5</b>	<b>8</b>	<b>11</b>	<b>12</b>	<b>18</b>	<b>33</b>	<b>51</b>	<b>8</b>	<b>146</b>

The majority of non-KPI datasets were collected between 2005 and 2009, but many datasets were also collected in the five years prior to 2005 (Table 12). Since 2010 only 8 datasets have been collected that do not include KPIs. Sediment Quality is consistently one of the highest sampled non-KPI assets.

As with many of the KPI assets, industry was generally the biggest supplier of datasets. In the case of sediment, rocky shores, and cetaceans there was considerably more data collected by industry than other sources. This information is presented in Table 13 since there were multiple assets listed under the non-KPI.

*Table 13 Number of non-KPI asset datasets which were collected from industry and non-industry sources.*

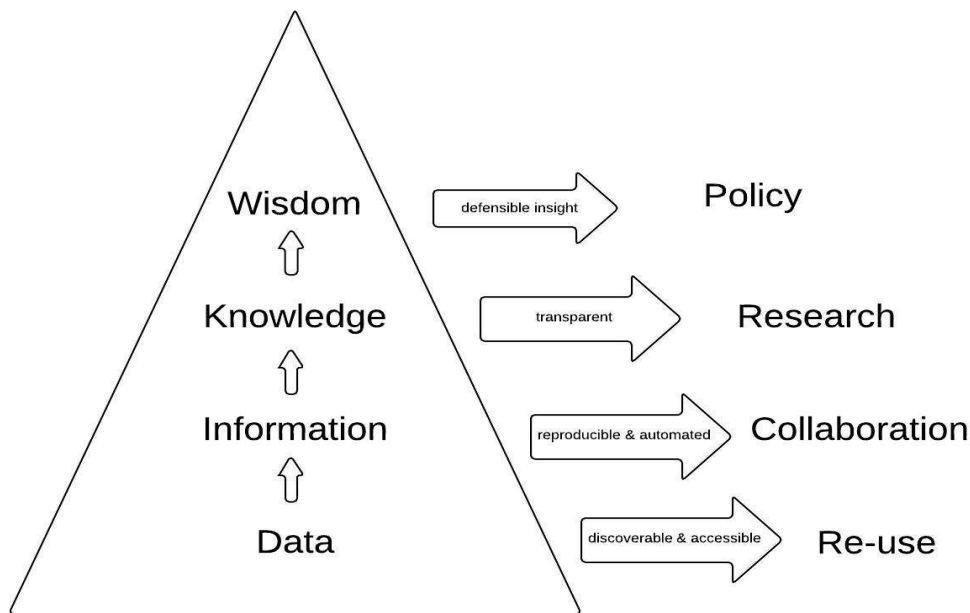
Asset	Industry	Non-Industry
Geomorphology	0	2
Sediment quality	33	5
Macroalgae and seagrass communities	22	19
Rocky shore communities	8	4
Marine mammals (cetaceans)	12	18
Marine mammals (dugongs)	9	11
Seabirds	7	5
<b>Totals</b>	<b>91</b>	<b>64</b>

### 3.3 Aim P(iii):

**To ensure data is summarised, archived, made accessible and broadly presented to Government, industry and the local community**

A significant component of the project was the design and implementation of a data catalogue and automated reporting framework that aligns with Departmental information management policies. This aim falls within the Marine Science Information Management (MSIM) framework of which the main goals (Figure 10) are:

- Data shall be discoverable and accessible;
- Information extracted from data must be reproducible, and the process shall be automated;
- Knowledge gained from interpretation of that information must be transparently gained, so that;
- Wisdom accumulated from a solid knowledge base is defensible and auditable and can be used to advise policy and inform stakeholders.



*Figure 10 The framework for Marine Science Information Management, implemented by the Marine Science Program.*

Marine Science Program utilises a web based data storage and transfer system allowing knowledge access and sharing. A data catalogue based on CKAN has been created as a secure data repository and an internal storage mechanism for datasets. This data catalogue was specifically designed to achieve the goals outlined in Pluto Offset 'D'. Other applications have been utilised to streamline the data sharing and report writing processes. The Pluto Offset 'D' project has been incorporated into the system and is part of a larger network knowledge sharing strategy.

The purpose of a data catalogue is to:

- make data discoverable and accessible to authorised end-users
- protect data from unauthorised access
- preserve meaning and context of data through metadata beyond the life span of the data collection phase and the involved team
- facilitate re-use of data and data products by other teams multiple times
- provide a safe and secure cataloguing and archiving solution for datasets

At present, all data collected in this project is stored securely behind a Departmental firewall and can only be accessed through the intranet by Parks and Wildlife staff.

In all cases where datasets included latitudes/longitudes this data was stored in shape files through the use of the QGIS software as well as being georeferenced in the data catalogue. This will assist other Pluto Offset 'D' projects by displaying data availability spatially. Where datasets contain spatial information, these can be georeferenced in the catalogue on three levels: dataset, study sites, observations.

To assist the knowledge sharing aspect of this objective, a Report Automation Framework has been created and implemented within Marine Science Program. The



Report Automation Framework provides users with in-browser access to programming which collates compiles and presents datasets stored within the data catalogue. The Report Automation Framework is currently used for science reporting that informs the MPRA audit process for WA's marine parks and reserves. When the proposed Dampier marine reserves are created, the framework will enable data collected in this project to be fed into the annual MPRA reporting.

Reports and datasets collected as part of Pluto Offset 'D' project 'i' have been archived in the bibliographic management software Zotero (Appendix 3).

### 3.4 Aim P(iv):

#### **To assist the design and implementation of Pluto LNG Project Offset 'D' projects (ii), (iii) and (iv)**

Work has commenced on project 'iv', the establishment of long-term monitoring reference sites in the proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area. Work has been undertaken to select sites based on the historical data identified, assessed and collated through Pluto Offset 'D' project 'i'. Coral and fish monitoring sites have been selected based on percent cover and species richness, as well as that the frequency and length of time a site has been monitored which allows scientists to hind-cast condition and pressure metrics. Pressure variables found within datasets, such as water quality and proximity to development projects can also advise site selection for a monitoring program designed to assess impacts of anthropogenic pressures.

Historical data is also being compiled for these areas with the aid of the findings of project 'i'. In some cases, historical data indicated that proposed sites were inappropriate based on descriptions of the sites and benthic cover; however, this allowed for the selection of new sites. Further *in situ* verification may render other sites inappropriate; for example as a result of environmental factors such as currents and wave exposure. The data collated in project 'i' will quickly assist with the selection of secondary sites with appropriate characteristics and historical time series. Results from project 'i' are also currently being used to draft a monitoring prioritisation matrix and pressure risk assessment, which will be used to focus research and monitoring effort in the other three projects.

Preliminary work has also commenced on projects 'ii' and 'iii', with the assistance of the findings from this work. The results of this study have provided information on knowledge gaps, and has highlighted areas where dedicated research is required.

All outputs from other parts of project will be added to the data catalogue.

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## Appendix 1 Ministerial Statement 757 Schedule 6

## Schedule 6

### Schedule 6 - Summary of the Proponent Offsets

OFFSET	GOVERNANCE	TIMELINE	COST
The management and monitoring of the proposed conservation zone at Site A for the life of the project and identification of the long-term conservation outcome post project completion.	WEL and DEC to agree management and monitoring scope. WEL to implement.	Ongoing for the life of the project.	\$30,000 p.a. management and monitoring costs during construction phase (2008-10). Ongoing operational costs to be reevaluated following initial monitoring and maintenance phase.
Rehabilitation/restoration of degraded areas that fall both outside of the lease and outside areas of potential industrial development. Woodside to work with DEC to identify potential rehabilitation areas.	WEL and DEC to agree scope of rehabilitation areas and criteria. WEL and DEC to agree the mechanism for implementation from one of three options: 1. WEL implementation 2. DEC implementation 3. Contractor implementation	Commence in 2008.  Reevaluation post construction phase.	\$70,000 for establishment of a restoration program in 2008. \$30,000 p.a. maintenance and monitoring costs during remaining construction phase (2009-13). Ongoing operational costs to be reevaluated following initial monitoring and maintenance phase.
Taxonomic studies on the 37 flora species of conservation significance (undescribed, poorly known, taxonomic problem taxa) on the Burrup.	WEL and DEC to agree scope. DEC funded to undertake taxonomic studies as the capacity, facilities and skills are readily available at the WA Herbarium	Completed by DEC 2008.	\$250,000
Research and monitoring consistent with the Indicative Management Plan for the Dampier Archipelago Marine Park.	WEL and DEC to agree scope. DEC funded to undertake research in collaboration and partnership with other key partners.	2008-2012	\$3.8 million (\$760,000 pa)
Improving capacity within government and the private sector to manage dredging impacts on tropical coral reef communities involving:  Phase 1. the acquisition of field data, and Phase 2. the acquisition of laboratory-generated data.	WEL and DEC to agree scope. WEL to implement.	Before, during and following dredging.	Phase 1 - \$2.6 M Phase 2 - \$600,000
Genetic work to resolve taxonomic uncertainties in relation to Rhagada sp 12	University of Western Australia commissioned to undertake this project (in consultation with DEC and WAM).	2008-2011	\$100,000
Enthno-botanical study to examine likely links between past habitation and use of botanical resources on Woodside leases.	WEL and DEC to agree scope. WEL to implement.	2007-08	\$150,000

## Appendix 2 Key Performance Indicator datasets

*Appendix 2 Table 1 Identified and prioritised datasets for coral reef communities in the study area ordered by year of publication*

Appendix 2 Table 1 Identified and prioritised datasets for coral reef communities in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest				Asset Pressure Indicators of Interest*		
				Coral Cover	Coral Community Composition	Recruitment	Size Frequency	Predation (COTS and drupella)	Bleaching	Pathogens
CRC063	Western Australian coral reefs with preliminary notes on a study at Kendrew Island, Dampier Archipelago	1972	Wilson BR							
CRC072	The Fauna and Flora and Planned Usage of the Dampier Archipelago	1972	Burbidge AA							
CRC016	Acanthaster studies on a Western Australian coral reef [Proceedings of the second International Symposium on Coral Reefs. Volume 1]	1974	Wilson BR Marsh LM							
CRC111	Seasonal behaviour of a normal population of Acanthaster in Western Australia	1974	Wilson BR and Marsh LM							
CRC003	Report on the corals and some associated invertebrates of the Dampier Archipelago [In: Report on the marine fauna and flora of the Dampier Archipelago : unpublished reports submitted to Meagher and LeProvost]	1978	Marsh LM (WAM)	1	1			1		
CRC052	Marine environment of Dampier Archipelago	1979	Meagher & LeProvost	1	1					
CRC156	Draft Environmental Impact Statement and Environmental Review and Management Programme	1979	Woodside Petroleum Development Pty. Ltd.							
CRC193	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 1	1980	LeProvost, Semeniuk and Chalmer	1	1			1		
CRC194	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 2	1981	LeProvost, Semeniuk and Chalmer	1	1					
CRC073	The marine environments of the dampier archipelago [Journal of the Royal Society of Western Australia; Vol 65, Part 3, 1982, p. 97-114]	1982	Semeniuk V							
CRC122	Environmental Monitoring of Pipeline Installation in Mermaid Sound. Report prepared by Meagher and Associates for Woodside.	1984	Meagher TD and Associates							
CRC005	Mass spawning of scleractinian corals in the Dampier Archipelago and the implications for management of Coral Reefs in Western Australia (Chapter 5 of Ecology of scleractinian corals of Dampier Archipelgao has a 1986-87 summation of spawning corals )	1985	Simpson CJ (DCE)							
CRC032	Technical report on suspended matter in Mermaid Sound, Dampier Archipelago	1985	Forde MJ (DCE)							
CRC061	Environmental factors affecting coral growth in the Dampier Archipelago, Western Australia [Dampier Archipelago Marine Study]	1985	Simpson CJ (DCE)					1	1	1
CRC071	Mass Spawning of Scleractinian corals in the Dampier Archipelago and the implications for management of coral reefs in Western Australia	1985	DCE					1		
CRC076	Vegetation monitoring of the rehabilitation areas burrup peninsula	1985	Blackwell, M							
CRC037	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1986	1986	Woodside Offshore Petroleum			1				
CRC060	Analysis of coral community data using multivariate techniques and their application to other community data	1986	Paling E I	1	1			1		
CRC009	Report on surveys of the distribution, abundance and impact of Acanthaster planci on reefs within the Dampier Archipelago (Western Australia) April 1987	1987	Johnson DB and Stoddart JA							
CRC004	Ecology of Scleractinian corals in the Dampier Archipelago, Western Australia	1988	Simpson CJ (EPA)			1			?	?
CRC036	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1988	1988	Woodside Offshore Petroleum			1			1	?
CRC077	Dampier Archipelago; A interim report on a reconnaissance inspection of hamersley iron	1988	Nunn R							
CRC006	Survey of crown-of-thorns starfish and coral communities in the Dampier Archipelago, Western Australia	1989	Simpson CJ Grey K (EPA)	1					1	
CRC120	LNG Shipping Channel - Spoil Dumping Permit Mermaid Sound Western Australia Environmental Monitoring Programme to December 1989. Report prepared for Woodside.	1989	LeProvost, Semenuik and Chalmer							
CRC086	Hamersley Iron Maintenance Dredging, Dampier Shipping Channel, Environmental Monitoring Programme, Final report - November 1990.", Unpublished Report No. R 322, November 1990 to Hamersley Iron Pty Ltd, Perth WA.	1990	LeProvost Environmental Consultants							
CRC121	Maintenance Dredging 1989 Mermaid Sound Western Australia - State Environmental Monitoring Programme. Report no R292, prepared for Woodside Offshore Petroleum Pty Ltd	1990	LeProvost, Semenuik and Chalmer						1	
CRC118	Chemical and Ecological Monitoring of Mermaid Sound June 1991 Survey First Annual Report	1991	LeProvost Environmental Consultants							
CRC054	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring	1992	Woodside Offshore Petroleum						1	
CRC074	Incidence of Drupella on coral monitoring transects between serrurier island and mermaid sound	1992	Hilliard RW	1	1					
CRC140	1994 LPG Jetty and Ship-Turning Basin Dredging Programme Marine Monitoring Programme [Appendix D In: North West Shelf Venture Additional Liquefied Natural Gas (LNG) Facilities Public Environmental Review (WA) and Public Environmental Report (Commonwealth)]	1994	LeProvost Dames and Moore	1						
CRC080	Dampier Inner Harbour Marine Habitats Survey." Unpublished Report to Hamersley Iron by Environmental Contracting Services, Perth WA.	1995	ECS							
CRC091	A preliminary assessment of fish and coral communities on reefs of the Dampier Archipelago. In: Western Australian Reseach Activities, 1993-1994	1995	Oxley WG Christie CA and Thompson AA (AIMS)	1	1				?	?
CRC119	1994 LPG Jetty and Ship-Turning Basin Spoil Disposal Programme Marine Monitoring Programme [Report to Woodside.Offshore Petroleum Pty Ltd]	1995	LeProvost Dames and Moore	1	?				?	?
CRC057	AUSI Iron Project, Infrastructure Requirements, Consultatiuve Environmental Review, Madigan Point Marine Survey [Marine Survey, Appendix D, In: AUSI Iron Project, Infrastructure Requirements, Consultatiuve Environmental Review March 1996	1996	LeProvost Dames & Moore							
CRC138	Marine Monitoring of Dredging Operations in Mermaid Sound, WA - 1996. Internal report prepared for Woodside Offshore Petroleum	1996	ECOS Consulting							
CRC075	Final survey of coral post dredging at dampier port, unpublished report for hamersly iron	1998	Ecos Consulting							
CRC081	Final field survey of corals post-dredging at Dampier Port.", Unpublished Report to Hamersley Iron by Environmental Contracting Services, Perth WA.	1998	ECS							
CRC020	Dampier Archipelago/Cape Perston regional perspectives	2000	Osbourne S Bancroft K						1	
CRC041	Baseline survey of benthic marine communities of Cape Preston and Preston Island [Appendix A, Cape Preston Benthic Habitats (URS, 2008), Appendix A, Sino Iron Project Marine Management Plan (LeProvost Environmental Pty Ltd, 2008).Associated with MAS635]	2000	Campey ML and Gilmore JP	1	1					
CRC082	Dampier Marine Environmental Study - Review & Survey Report.", Unpublished report by IRC Environment for Hamersley Iron Pty Limited, Perth, WA.	2000	IRC	1	?					
CRC115	A review of the coral community monitoring of the ChEMMs program. Report by the University of Western Australia to Woodside.	2000	Harvey E Vanderklift M and Kendrick G	1	1					
CRC184	Developing a broadscale habitat map for the Montebello/Barrow islands and the Dampier Archipelago/Cape Preston regions : Marine Reserve Implementation, Pilbara : a collaborative project between CALM Marine Conservation Branch and the Pilbara Regional Office	2000	Bancroft KP, Sheridan MW and Davidson JA (CALM)							
CRC021	Upgrade of multi-user seawater supply and introduction of wastewater to ocean outfall, Burrup Peninsula. Department Of Water [Associated with MAS594 Bulletin 1044]	2001	DoW						1	
CRC056	Western Stevedores Dampier Public Wharf Loadout Facility and Laydown Area Benthic Survey [Appendix 7, Benthic Fauna Survey, In: Dampier Public Wharf Proposed Loading Facility and Laydwn Area Environmental Protection Statement]	2001	Astron Environmental						1	
CRC083	Environmental Quality Criteria - Dampier Operations." Unpublished report by IRC Environment for Hamersley Iron Pty Limited. Perth, WA	2002	IRC						1	
CRC092	Port Walcott Baseline Survey for Introduced marine Pests. Report to Robe River Iron and Associates	2002	Ecologia						1	
CRC101	Review of recreational take of corals in western australia - a discussion paper [Fisheries Management Paper 163]	2002	DoF						1	

Appendix 2 Table 1 Identified and prioritised datasets for coral reef communities in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest				Asset Pressure Indicators of Interest*		
				Coral Cover	Coral Community Composition	Recruitment	Size Frequency	Predation (COTS and drupella)	Bleaching	Pathogens
CRC114	Acute sedimentation causes size-specific mortality and asexual budding in the mushroom coral, <i>Fungia</i> fungites	2002	Gilmour, James P.							
CRC195	Substantial asexual recruitment of mushroom corals contributes little to population genetics of adults in conditions of chronic sedimentation [Marine Ecology Progress Series, Vol 235: 81-91]	2002	Gilmour, James P (UWA)							
CRC059	A review of the oceanography of the Dampier Archipelago,Western Australia	2003	Pearce A <i>et al</i>							
CRC079	Dampier Port authority dredging project; bethic coral community monitoring - baseline data report	2003	MScience							
CRC084	Dampier Coral Habitat Desktop Study. Unpublished technical note by IRC Environment for Hamersley Iron Pty Limited, Perth, WA.	2003	IRC Environment	1						
CRC085	Survey of Corals East of Parker Point.", Unpublished technical note by IRC Environment for Hamersley Iron Pty Limited, Perth, WA.	2003	IRC	1						
CRC087	Hamersley Iron Dredging Project: Benthic Coral Community Monitoring - Baseline Data Report." MSA07R1, Unpublished report to Hamersley Iron by Mscience Pty Ltd, Perth, WA.	2003	M-Science	1	1					
CRC105	Monitoring and reporting associated with Ministerial Approval Statement 644 for Hamersley Iron Pty Ltd - Hamersley Iron Dredging Program for the Dampier Port Upgrade	2003								
CRC106	Monitoring and reporting associated with Ministerial Approval Statement 638 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to 95 MTPA Capacity	2003								
CRC107	Surveys, monitoring and reporting associated with Ministerial Approval Statement 635 for Mineralogy Pty Ltd - Iron Ore Mine, Downstream Processing (Direct Produced and Hot-Briquetted Iron) and Port Construction, Cape Preston, Pilbara	2003								
CRC128	Review of Coral Surveillance Monitoring for the ChEMMS Programme. Report prepared for Woodside.	2003	URS Australia	1						
CRC185	Introduction to the marine environment of Dampier, Western Australia [In: The Marine Flora and Fauna of Dampier, Western Australia]	2003	Fred E. Wells and Diana I. Walker							
CRC007	A general description of the subtidal habitats of the Dampier Archipelago, Western Australia [In: Jones DS (Ed), 2004, A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia Museum Supplement no.66]	2004	Morrison PF (SKM / WAM)	1	1				1	
CRC008	Scleractinian corals collected during 1998 from the Dampier Archipelago, Western Australia [In: Editors: Jones D,S, A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia Supplement no.66]	2004	Griffith JK		1				1	
CRC088	Dampier Port Upgrade Project: Coral Studies." MSA08R1, Unpublished Report to Hamersley Iron Pty Limited by Mscience Pty Ltd, Perth, WA.	2004	M-Science	1	1				1	
CRC089	Hamersley Iron Dredging Project: Benthic Coral Health Monitoring Baseline Updated Data Report." MSA15R1, Unpublished Report to Hamersley Iron Pty Limited by Mscience Pty Ltd, Perth, WA.	2004	M-Science						1	
CRC093	Cape Lambert Tug Harbour: Benthic Coral Community Monitoring Baseline Data report [Mscience report MSA25R1]	2004	MScience	1	1				1	
CRC117	Survey of seabed habitat damage from dredging and pipelay barge anchoring during TSEP pipeline installation. Report prepared by IRC Environment for Woodside.	2004	International Risk Consultants Environment							
CRC161	Dampier Port Upgrade to 95 mtpa, Coral health Monitoring, Interim Data Report mid - July 2004 [M-Science Report MSA15R8, Appendix A Coral Monitoring July Interim Survey, Dampier Port Upgrade to 95 mtpa Capacity Monthly Marine Monitoring Report July 2004. SKM report to Hamersley Iron. Associated with MAS638]	2004	M-Science	1	1					
CRC165	TSEP Pipeline Coral and Water Quality Monitoring Final Report. Report prepared by IRC Environment for Woodside [Assocaited with MAS482]	2004	IRC Environment	1	1					
CRC166	Methodology [In: Jones DS (Ed), 2004, Report on the Results of the Western Australian Museum / Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia 1998 - 2002. Records of the Western Australian Museum Supplement No.66.]	2004	Hutchins JB, Slack-Smith SM, Berry PF and Jones DS (WAM)					1	?	
CRC167	Bulk Liquids Berth Project: Species-specific assessment of coral mortality during dredging: July 2004 [Prepared for Dampier Port Authority]	2004	M-Science							
CRC178	Dampier Port Upgrade tp 95 mtpa, Coral health Monitoring, Interim Data Report - July 2004 [M-Science Report MSA15R9, Appendix B Coral Monitoring July Data Report, Dampier Port Upgrade to 95 mtpa Capacity Montly Marine Monitoring Report July 2004. SKM report to Hamersley Iron. Associated with MAS638. ]	2004	Mscience	1	1					
CRC179	Dampier Port Upgrade tp 95 mtpa, Coral Health Monitoring, Interim Data Report - early September 2004 [M-Science Report MSA15R12, Appendix A Coral Monitoring September Interim Survey, Dampier Port Upgrade to 95 mtpa Capacity Montly Marine Monitoring Report September 2004. SKM report to Hamersley Iron. Associated with MAS638. ]	2004	Mscience	1	1					
CRC180	Dampier Port Upgrade tp 95 mtpa, Coral Health Monitoring, Interim Data Report - Mid September 2004 [M-Science Report MSA15R15, Appendix ? Coral Monitoring September Interim Survey, Dampier Port Upgrade to 95 mtpa Capacity Montly Marine Monitoring Report September 2004. SKM report to Hamersley Iron. Associated with MAS638. ]	2004	Mscience	1	1					
CRC181	Dampier Port Upgrade tp 95 mtpa, Coral Health Monitoring, Data Report - September 2004 [M-Science Report MSA15R16, Appendix B Coral Monitoring September Data Report, Dampier Port Upgrade to 95 mtpa Capacity Montly Marine Monitoring Report September 2004. SKM report to Hamersley Iron. Associated with MAS638. ]	2004	Mscience	1	1					
CRC182	Water Quality Monitoring Data [Appendix E, Dampier Port Upgrade to 95 Mtpa Capacity, Monthly Marine Monitoring Report, July 2004, Final (SKM report - DPU-REF-125 Rev B). Associated with MAS 638]	2004	SKM							
CRC183	Water Quality Monitoring Data [Appendix F, Dampier Port Upgrade to 95 Mtpa Capacity, Monthly Marine Monitoring Report, September 2004, Final (SKM report - DPU-REF-125 Rev B). Associated with MAS 638]	2004	SKM							
CRC033	Scleractinian corals of the Dampier Port and Inner Mermaid Sound: Species list, community composition and distributional data [in Stoddart, J.A. and Stoddart, S.E. (eds) Corals of the Dampier Harbour: Their Survival and Reproduction during the Dredging programs of 2004]	2005	Blakeway DR and Radford B		1					
CRC034	Patterns of Mortality from natural and anthropogenic infulences in Dampier corals [in Stoddart, J.A. and Stoddart, S.E. (eds) Corals of the Dampier Harbour: Their Survival and Reproduction during the Dredging programs of 2004]	2005	Blakeway DR	1	1					
CRC035	Rapid high-precision monitoring of coral communities to support reactive management of dredging in mermaid sound, dampier. western australia [in Stoddart, J.A. and Stoddart, S.E. (eds) Corals of the Dampier Harbour: Their Survival and Reproduction during the Dredging programs of 2004]	2005	Stoddart JA <i>et al</i>	1						
CRC055	Patterns of reproduction of in-shore corals of the Dampier Harbour, Western Australia, and comparisons with other reefs', [in Stoddart, J.A. and Stoddart, S.E. (eds) Corals of the Dampier Harbour: Their Survival and Reproduction during the Dredging programs of 2004]	2005	Stoddart JA							
CRC094	Cape Lambert Tug Harbour: Post Dredging Coral Survey June 2005. Unpublished Report to Robe River Iron Associates. MSA25R4	2005	M-Science	1	?					
CRC104	Monitoring and reporting associated with Ministerial Approval Statement 702 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to a Throughput Capacity of 120 million Tonnes Per Annum	2005								
CRC123	Woodside Dredging Program Coral Monitoring Baseline: September 2005. Report prepared for Woodside.	2005	M-Science							
CRC129	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside Energy Limited.	2005	URS Australia	1	1					
CRC130	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2005. Report Prepared for Woodside.	2005	URS Australia							
CRC150	Water quality, plume modelling and tracking before and during dredging in Mermaid Sound, Dampier, Western Australia [in Stoddart, J.A. and Stoddart, S.E. (eds) Corals of the Dampier Harbour: Their Survival and Reproduction during the Dredging programs of 2004]	2005	Stoddart JA and Anstee S							
CRC168	Coral Distribution in the Port of Dampier [Unpublished report by MScience Pty Ltd for the Dampier Port Authority, MSA50R1, Dampier, WA]	2005	M-Science							
CRC186	Assets of the marine and coastal environment of the Dampier Archipelago, Western Australia : a register, July 2005	2005	M-Science							
CRC188	Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.	2005	DoCLM						1	
CRC196	Cape Lambert Marine Monitoring Program [Mscience report to Pilbara Iron, August 2005]	2005	Mscience							
CRC042	Post dreding coral habitat survey in the mermaid sound ; survey 3 [Associated with MAS644 - Mscience Report MSA15R29]	2006	M-Science	1	1					
CRC043	Dampier Port Upgrade Project Coral Studies [MScience Report MSA08R1v3. Associated with MAS702.]	2006	M-Science	1	1					
CRC095	Cape Lambert Upgrade Sampling and Analysis Plan Report Rev 1 20 January 2006. Prepared for the Robe River Iron Associates.	2006	SKM							
CRC103	Monitoring and reporting associated with Ministerial Approval Statement 731 for Hamersley Iron Pty Ltd - Hamersley Iron Dredging Program for the Dampier Port Upgrade	2006								
CRC125	Pluto LNG Development: Coral Assessment Model Two. Report prepared for Sinclair Knight Merz.	2006	M-Science							
CRC126	Woodside Dredging Program - Post hydraulic dredging coral monitoring report May 2006. Report prepared for Woodside.	2006	M-Science	1	1					



Appendix 2 Table 1 Identified and prioritised datasets for coral reef communities in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest				Asset Pressure Indicators of Interest*		
				Coral Cover	Coral Community Composition	Recruitment	Size Frequency	Predation (COTS and drupella)	Bleaching	Pathogens
CRC127	Pluto LNG Development - Marine Baseline Studies: Coral Baseline August 2006. Report prepared for Woodside.	2006	M-Science	1	1					
CRC153	Dampier coral recovery study: coral recruitment 2006; Report MSA55R1 [Appendix H in: Dampier Port Dredging: Dredging and Dredge Spoil Disposal Management Plan Revision 9, 7 December 2006, SKM]	2006	Mscience (Overall report SKM)			1				
CRC169	Woodside Dredging Program: Post Dredging Coral Monitoring Report November 2006 [Report prepared for Woodside Energy Ltd by Mscience Pty Ltd]	2006	M-Science							
CRC170	Pluto LNG Development: Coral Loss Estimate [Report prepared for Sinclair Knight Merz]	2006	M-Science							
CRC172	Dampier Port Upgrade Dredging Program 2006: Long Term Coral Habitat Management & Monitoring Program. Unpublished [Report MSA68R1 - Associated to MAS]	2006	M-Science							
CRC173	Dampier Port Upgrade Dredging Program Long term Coral habitat Monitoring and Management Plan - Baseline Data. [Report MSA68R2 - Associated with MAS]	2006	M-Science							
CRC187	Review of research and data relevant to the marine and terrestrial environment of Dampier	2006	Jackson, K. J. , Paling, E. I., Stoddart, J. A.							
CRC002	Assessing the effectiveness of sanctuary zones in the proposed Dampier Archipelago Marine Park : Data collected during the 2007 survey. Marine Science Program Data Report Series: MSPDR6. January 2009.	2007	Armstrong SJ (DEC)	1	1					
CRC027	Pluto LNG Developoment, Burrup Peninsula [Report and Recommendations of the Environmental Protection Authority, Bulletin 1259, EPA, July 2007. Associated with MAS 757]	2007	EPA							
CRC031	Dredging program for the cape lambert port upgrade - 85 mtpa Dredging and Spoil Disposal mangement plan, Environmental management Plan Revision 11. [Associated with MAS743]	2007	SKM					1		
CRC040	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 16 [Associated with MAS430 and MAS734 M- Science Report MSAS90R24]	2007	M-Science							
CRC046	Dampier Port Upgrade Dredging Program 2006/7 Coral Health Monitoring Report Data Report #26 Dec-07 [MScience report MSA62R29. Associated with MAS731.]	2007	M-Science							
CRC048	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 13 [Associated with MAS743 - M-Science Report MSA90R20]	2007	M-Science							
CRC049	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 14 [Associated with MAS743 - M-Science Report MSA90R21]	2007	M-Science							
CRC050	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 12 [Associated with MAS743 - M-Science Report MSA90R19]	2007	M-Science							
CRC064	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 09 [Associated with MAS743 - M-Science Report MSA90R16]	2007	M-Science							
CRC065	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 11 [Associated with MAS743 - M-Science Report MSA90R18]	2007	M-Science						?	?
CRC066	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 10 [Associated with MAS743 - M-Science Report MSA90R17]	2007	M-Science							
CRC067	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 6	2007	M-Science							
CRC068	Cape Lambert Upgrade Dredging Program 2007 : coral health monitoring report survey 4	2007	M- Science							
CRC096	Dredging Program for the Cape Lambert Port Upgrade Environmental referral Document. Prepared for the Robe River Iron Associates (Appendix B Coral Health Monitoring Plan)	2007	SKM	1						
CRC109	Monitoring and reporting associated with Ministerial Approvals Statement 743 for Robe River Iron Associates - Dredging Program for the Cape Lambert Port Upgrade	2007								
CRC112	Dampier Port Environmental Monitoring GIS May 2007 (Report to Dampier Port Authority)	2007	M-Science							
CRC134	Pluto LNG Development, Coral Habitat Survey, 2007	2007	M-Science	1						
CRC151	Post dredging coral habitat survey in the mermaid sound, Final May 2007 [MScience Report MSA15R30. Associated with MAS644]	2007	M-Science	1	1					
CRC155	Pluto LNG Development Baseline Water Quality Assessment Report April 2007 [MScience Report MSA61R12 to Woodside Burrup Pty Ltd. Appendix A, Pluto LNG Development Addendum to Public Environmental Report/Public Environmental Review Supplement and Response to Submissions, SKM, Rev 02, 1 June 2007. Appendix 6 (Summary of Submissions and Proponent's Response to Submissions), Pluto LNG Developoment, Burrup Peninsula, Report and Recommendations of the Environmental Protection Authority, Bulletin 1259, EPA, July 2007. Associated with MAS 757]	2007	Mscience							
CRC171	Dampier Cargo Wharf Habitat Survey [Prepared for Dampier Port Authority]	2007	M-Science						?	?
CRC189	Pluto LNG Development, Addendum to public environment report / public environmental review supplement and response to public submissions, Rev 02, 1 June 2007 . [Appendix 6 to Pluto LNG Development, Burrup Peninsula, Woodside Energy Ltd, Report and recommendations of the Environmental Protection Authority, Bulletin 1259, EPA, July 2007]	2007	Sinclair Knight Merz							
CRC197	Dredging Program for the Cape Lambert Port Upgrade - 85 Mtpa: Long Term Coral Habitat Monitoring and Management Plan [SKM, prepared for Robe River Iron Associates]	2007	SKM	1	1					
CRC200	Pluto LNG Development Marine Baseline Studies: Final Report [Draft Mscience report MSA61R14. Associated with MAS 757]	2007	Mscience	1	1	1				
CRC012	Cape Lambert Benthic Habitat Mapping: benthic marine habitats at Cape Lambert West, Bezout, Dixon and Delambre Islands. Supporting Document 7.4, Appendix 1, MSA123R1 [Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report].	2008	M-Science	1	1					
CRC015	Pluto LNG development: bleaching patterns across the pilbara in early 2008 [MScience report MSA93R40. Associated with MAS757 and MAS850]	2008	M-Science	1	1					
CRC023	Pluto LNG Development Coral Health Monitoring: Interim Review Sept 2008 [Appendix 8 – Phase 1 Coral Health Monitoring Review (MSA93R55), Pluto LNG Project - Ministerial Statement 757 Compliance Report 2008. Mscience report MSA93R55. Associated with MAS757]	2008	M-Science		1					
CRC024	Cape Lambert Port B Development. Abundance and distribution of inter and subtidal benthic habitats in the Cape Lambert area: 2008 Survey. Rev 0, 21 July 2008 [Appendix A10, Cape Lambert Port B Development Public Environmental Review. Associated with MAS 840.]	2008	SKM	1		1	1			
CRC026	Pluto LNG Development Coral Health Monitoring: Survey 8 - March 2008 [MScience report MSA93R20. One report in a series of reports related to coral health monitroing required under MAS757Report.]	2008	MScience							
CRC030	Cape Lambert upgrade dredging program 2007 Coral Health Monitoring Survey - [M-Science reports MSA90R3 - MSA90R22 surveys 2 - 16, plus baseline and final reports. Associated with MAS430 and MAS743]	2008	M-Science							
CRC039	Cape Lambert Upgrade Dredging Program 85 mtpa 2008 : Long Term Coral Habitat Monitoring and Management Plan - Post Dredging. Revision 2. 24 April 2008 [Associated with MAS420]	2008	SKM	1	1	1	1		1	
CRC047	Dampier Port Upgrade Dredging Program 2006/7 Coral Health Monitoring Report Data Report #28 Jan-08 [MScience report MSA62R31. Associated with MAS731.]	2008	M-Science							
CRC062	Preliminary assessment of coral communities at selected sites in the proposed Dampier Archipelago Marine Park	2008	Armstrong SJ							
CRC102	Sino Iron Project Marine Management Plan [Prepared for Mineralogy under MAS 635]	2008	Leprovost Environmental Pty Ltd							
CRC136	Pluto LNG Project Baseline Marine Habitat Survey Report Prepared in Accordance with Requirements of Ministerial Condition 6-11 of the Pluto Ministerial Statement	2008	SKM							
CRC139	Pluto LNG Development: Coral Bleaching Assessment - Feb 2008. Unpublished report MSA93R17 by Mscience Pty Ltd to Woodside Burrup Pty Limited	2008	M-Science							
CRC162	Pluto LNG Project- Baseline Marine Habitat Survey (Drop Camera): Draft Report CMF 2008-002. Unpublished report by the University of Western Australia for Sinclair Knight Mez, Perth WA.	2008	? Waddington, K; Meeuwig, JJ; Harvey, ES ?	1	1					
CRC163	Pluto LNG - Baseline Marine Habitat Survey, Report Prepared in Accordance with Requirements of Ministerial Condition 6-11 of the Pluto Ministerial Statement, Rev 1, 21 November 2008	2008	SKM	1	1					
CRC175	Dampier Port Upgrade Dredging Program Long term coral monitoring and management - post-dredging survey 1 [Report MSA68R3- Associated to MAS]	2008	M-Science							
CRC191	Pluto LNG Development Water Quality Review Report: MSA93R53 [Appendix 6 - Phase 1 Water Quality Monitoring Review (MSA93R53), in: Pluto LNG Project - Ministerial Statement 757 Compliance Report 2008: Pluto Liquefied Natural Gas Development (Site B Option) Burrup Peninsula, Shire of Roebourne]	2008	MScience							
CRC192	Cape Lambert Benthic Habitat Mapping: benthic marine habitats at Cape Lambert west, Bezout, Dixon and Delambre Islands [Appendix 1, 7-4, Anketel Point Port Development Draft PER. Mscience report MSA123R1, report to Maunsell Australia Pty Ltd. Associated with MAS 881]	2008	Mscience	1	1					
CRC198	Dredging Program for the Cape Lambert Port Upgrade - 85 Mtpa Marine Final Summary Report Rev 3 28 April 2008	2008	SKM	1	1	1	1			
CRC201	Pluto Development: Offsets Program Status of Zone A Corals in August 2008 [Mscience report MSA101R4. Associated with MAS757]	2008	Mscience	1	1					
CRC202	Pluto Development: Offsets Program Status of Zone A Corals [May 2008 Mscience report MSA101R4. Associated with MAS757]	2008	Mscience	1	1					
CRC204	Pluto LNG Development: Offsets Program Comparison of Predicted and Measured Impacts [Mscience report MSA101R3. Associated with MAS757]	2008	Mscience	1						



Appendix 2 Table 1 Identified and prioritised datasets for coral reef communities in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest				Asset Pressure Indicators of Interest*		
				Coral Cover	Coral Community Composition	Recruitment	Size Frequency	Predation (COTS and drupella)	Bleaching	Pathogens
CRC010	Comparison of the Dampier Port Fringing Reef Benthic Community with Nearby Reef Areas [Dampier Marine Services Facility Assessment on Proponent Information, Appendix 11. Report to the Dampier Port Authority	2009	Worley Parsons	1	1					
CRC011	Benthic Habitat Losses within Dampier Archipelago and Implications of this Project [Dampier Marine Services Facility Assessment on Proponent Information, Appendix 15. Report to the Dampier Port Authority	2009	Worley Parsons		?					
CRC022	Dampier Marine service facility; water quality impacts of the pluto program in an area of intesive dredging [M-Science report MSA142R2]	2009	M-Science	1						
CRC025	Pluto LNG Development Coral Health Monitoring: Baseline [Appendix 14 - Baseline coral health monitoring Report, Pluto LNG Project - Ministerial Statement 757 Compliance Report 2008. MScience report MSA93R4. Associated with MAS757]	2009	M-Science	1	1	1			?	?
CRC028	Cape Lambert Port B Development Benthic Primary Producer Habitat (BPPH) monitoring Report (Subtidal) Revision 2 20 August 2009 [Associated with MAS 840]	2009	SKM	1					?	?
CRC029	Public Environmental Review and Draft Public Enviromental Report EPBC Referral Number 2008/4032 Cape Lambert Port B Development March 2009 [Associated with MAS840]	2009	SKM	1					1	1
CRC045	Dampier Port Upgrade Dredging Program September 2006, Long Term Coral Habitat Monitoring and Management, Supplementary Post Dredging Survey, September 2009 [MScience report number MSA106R2. Associated with MAS731]	2009	M-Science	1	1	1				
CRC053	Benthic Habitat Report: Dampier Marine Service Facility [Report to the Dampier Port Authority]	2009	Worley Parsons						1	1
CRC100	Benthic Habitat Report: Dampier Marine Service Facility [Report to the Dampier Port Authority]	2009	Worley Parsons							
CRC131	Pluto LNG Development: Dredging and Spoil Management Plan/Dredge Impact Management Plan (Rev 9, July 2009, SKM)	2009	SKM					?	1	?
CRC176	Dampier Port Upgrade Dredging Program Long Term Coral Habitat Monitoring & Management : Supplementary Post Dredging Survey [Report MSA106R2 - Associated with MAS]	2009	M-Science							
CRC177	Dampier Port Upgrade Dredging Program Long Term Coral Habitat Monitoring & Management Program - Final Postdredging Survey. [MScience report MSA106R1- Assocaited with MAS731]	2009	M-Science	1	1	1	1		?	?
CRC203	Pluto Development: Offsets Program Status of Zone A Corals in June 2009 [Mscience report MSA101R5. Associated with MAS757]	2009	Mscience	1	1					
CRC013	Anketell Point Port Benthic Primary Producers. Supporting document 7.6, Appendix 1 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report]	2010	AECOM	1	1					
CRC017	Anketell Point Port Development Proposal PER/draft PER; Part 3 - Marine Environmental Impact Assessment Section 9: Marine Fauna.	2010	AECOM							
CRC018	Anketell Point Port Development Proposal PER/draft PART 3 -Marine Enviromental Impact Assessment.	2010	AECOM							
CRC038	Dampier Port Upgrade Dredging Program 2006, Long Term Coral Habitat Monitoring and Management, August, 2010 [MScience report number MSA149R1. Associated with MAS731]	2010	M-Science	1	1	1	1			
CRC097	West Pilbara Iron Ore Project Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report. Associated with Ministerial Approval Statement 881	2010	API							
CRC098	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Dredge Environmental Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	2010	API							
CRC108	Monitoring and reporting associated with Ministerial Approvals Statement 840 for Pilbara Iron - Cape Lambert Port B Development - Shire of Roebourne	2010								
CRC137	Reports associated with post dredging benthic habitat Surveys required under condition 850:M6.12-14	2010	?							
CRC146	Report on 'Whole of Port Oil Spill Risk Assessment and Response Capability Review'	2010	DPA?							
CRC157	Pluto LNG Project An Evaluation of Dredging Impacts on Coral - November 2007 to February 2010 [Mscience report MSA145R1. Associated with MAS757]	2010	Mscience	1						
CRC199	Pluto LNG Development: Final Report on Coral and Water Monitoring [Mscience report MSA93R160. Associated with MAS757]	2010	Mscience	1	1	1			1	1
CRC205	Pluto Development: Offsets Program Status of Zone A Corals in March 2010 [Mscience report MSA101R6. Associated with MAS757]	2010	Mscience	1	1				1	1
CRC206	Pluto LNG Project An Evaluation of Dredging Impacts on Coral - November 2007 to February 2010 [Mscience report MSA145R1. Associated with MAS757]	2010	Mscience	1	1				1	1
CRC014	API West Pilbara Iron Ore Project - Stage 1 Bouger Passage Reef Habitat Assessment [Report API-E-U100-EN-REP-0002, 28 April 2011]. Supporting docunment 7.8, Appendix 2 Anketell Point Port Development Proposal Public Environmental Review/Final Public Environment Report	2011	API	1	1				1	1
CRC058	Seasonality of coral reproduction in the Dampier Archipelago, northern Western Australia	2011	Baird AH Blakeway DR Hurley TJ Stoddart JA							
CRC099	West Pilbara Iron Ore Project Stage 1 Anketell Point Port Development Proposal Section 43A EP Act 1986 Ammendment to Proposal and Responsde to Submissinos/Final PER. Associated with Ministerial Approval Statement 881	2011	API							
CRC110	Management plans, surveys, monitoring and compliance reports associated with Ministerial Approval Statement 868 for DPA - Dampier Marine Services Facility	2011								
CRC158	Pluto LNG Development Post Dredging Drop Camera Post Dredge Survey 2011 [M-Science report MSA163R1 - Associated with MAS 757]	2011	M-Science	1	1					
CRC164	Pluto LNG Development Post-Dredging Benthic Habitat Survey Rev 2 28 January 2011	2011	SKM	1	1					
CRC159	Cape Lambert Port B Development Dredging Environmental Marine Monitoring - Water Quality and Coral Health Monitoring Four Weekly Reports # 6 8 9 10 11 15,17,19,22 [Associated with MAS840]	2012	SKM							
CRC160	Cape Lambert Port B Development Dredging Environmental Marine - Additional Coral Tagging and Determining Baseline Condition-[Associated with MAS840]	2012	SKM							
CRC124	Pluto LNG Development: Baseline Studies for Corals and Sediments. Report prepared for Sinclair Knight Merz	?	M-Science							
CRC132	Scoping document associated with sedimentation monitoring	?	?							
CRC133	Site design report associated with Coral Condition Monitoring Programme	?	?						?	?
CRC135	Reports associated with live coral cover and community structure surveys	?	?							
CRC141	Monitoring reports/summaries and data	?	DPA?							
CRC142	Current/past Environmental Management Plans	?	DPA?							
CRC143	Current/past Marine Management Plans	?	DPA?							
CRC144	Documents/reports associated with collaborative reseach with UWA - methods, monitoring result summaries etc.	?	DPA?							
CRC152	Final Report' referred to in section 7.1.7 of the 'Dampier Port Dredging: Dredging and Dredge Spoil Disposal Management Plan' (SKM, 2006. For Hamersley Iron) [Associated with MAS 731]	?	?Environmental consultant, SKM or MScience?	?	?			?	?	?
CRC113	Woodside Offshore Petroleum ChEMMS monitoring program. Data and reports.	1983-?						?		
CRC154	Woodside Offshore Petroleum Pty Ltd, 1987. North West Shelf Development Project, Ocean Engineering Database Holdings Report. Document No. A9620RT025. July 1987.	1987+	Woodside Offshore Petroleum							
CRC148	Dampier dredging project: coral monitoring and management plan, Hamersley Iron Pty. Ltd, Western Australia, p. 17.	2003?	M-Science							
CRC149	Temporal and spatial variability of coral recruitment on WA reefs [refers AIMS work from 1995]	2003?	Smith, L.			?				
CRC090	Reports associated with monitoring programs 1, 2, 5, 6, 7 and 8 in the Dampier Operations Marine Managemenbt Program	Annual report?	?							
CRC078	Coral Spawning in Dampier Habour	In prep	Baird AH Stoddart JA							
CRC145	Database of survey information	ongoing	DPA							
CRC147	List of GIS datasets that woud be availabile and beneficial for the project	ongoing	DPA							

A total of 197 studies/datasets identified to be of relevance to the coral reef communities asset  
\* For turbidity, sedimentation and water temperature see tables and summaries under 'water quality'.

## Appendix 2 Key Performance Indicator datasets

*Appendix 2 Table 2 Identified and prioritised datasets for finfish in the study area ordered by year of publication*

Appendix 2 Table 2 Identified and prioritised datasets for finfish in the study area ordered by year of publication

ID	Study/Dataset	Publication Year	Author	Asset Condition Indicators of Interest			Asset Pressure Indicators of Interest*		
				Community Composition	Community Size Structure	Recruitment	Fishing Activity	Habitat change	Oceanography
F018	Environmental assessment of Nickol Bay, Dampier Archipelago : a proposal for trial bitterns discharge	1978	Dampier Salt Limited	1					
F035	The report of a reef fish survey conducted in the Dampier Archipelago during August, 1978 [In: Report on the marine fauna and flora of the Dampier Archipelago : unpublished reports submitted to Meagher and LeProvost]	1978	Hutchins JB (WAM)						
F042	Draft Environmental Impact Statement and Environmental Review and Management Programme	1979	Woodside Offshore Petroleum						
F013	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 1	1980	LeProvost, Semeniuk and Chalmer	1	1				
F052	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 2	1981	LeProvost, Semeniuk and Chalmer	1	1				
F043	Supplement to Phase 2 report on Marine Biological monitoring programme Burrup Peninsula, WA. [Appendix 3 In: North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring]	1983	Woodside Offshore Petroleum	1					
F021	Woodside's guide to fishing on the Dampier Archipelago	1984	Woodside Offshore Petroleum				1		
F026	The inshore fisheries of the dampier region of north west australia	1984	CSIRO: fisheries division				1		
F004	Community structure and zoogeographic affinities of the coastal fishes of the Dampier region of north-western Australia	1985	Blaber SJM etal	1			1		
F031	CSIRO's north west shelf program indicates changes in fish populations *usefull only if mentions dampier; ok for review for damp based details*	1985	Australias Fisheries						
F020	Woodside's guide to fishing on the Dampier Archipelago. Vol. II	1988	Woodside Offshore Petroleum						
F051	The marine fishes of north-western Australia	1988	Allen, G. R. and Swainston, R.						
F019	Woodside's guide to fishing on the Dampier Archipelago. Vol. III	1992	Woodside Offshore Petroleum						
F047	A new species of damselfish (genus Pomacentrus from nother-western Australia	1992	Allen, G. R.						
F038	A preliminary assessment of fish and coral communities on reefs of the Dampier Archipelago. In: Western Australian Reseach Activities, 1993-1994	1995	Oxley WG, Christie CA and Thompson AA (AIMS)	1					
F048	A new species of cardinalfish (Apogon: Apogonidae) from north-western Australia	1995	Allen, G. R.						
F015		1996	Driscoll P (DoF)						
F049	New records of reef and shore fishes from north-western Australia	1996	Allen, G. R.						
F050	A new species of cardinalfishes (Apogonidae) from northern Australia	1996	Allen, G. R. and Morrison, S. M.						
F022	FRR 118 – A study in WA's open access and wetline fisheries (1999) [J FIS]	1999	DoF						
F027	a review of dampier coastlines; its resources,uses,and management prepared for hamersly iron	1999	Mattiske and Associates						
F017	Dampier Archipelago/Cape Perston regional perspectives	2000	Osbourne S and Bancroft K						
F040	Biodiversity of shallow reef fish assemblages in Western Australia using a rapid censusing technique	2001	Hutchins JB (WAM)	1			1		

Appendix 2 Table 2 Identified and prioritised datasets for finfish in the study area ordered by year of publication

F033	Preliminary assessment and seasonal fluctuation in the fish biota inhabiting the concentrator pods of dampier salt	2002	Molony B						
F039	Port Walcott Baseline Survey for Introduced marine Pests. Report to Robe River Iron and Associates	2002	Ecologia	1	1				
F003	Checklist of marine fishes of the Dampier Archipelago, Western Australia [In: Wells FE, Walker DI and Jones DS (eds) Proceedings of the twelfth International Marine Biological Workshop : The Marine Flora and Fauna of Dampier, Western Australia. Held in Dampier from 24 July to 11 August 2000. Volume 2]	2003	Hutchins BJ	1					
F002	Fishes of the Dampier Archipelago, Western Australia [In: Jones DS (2004), A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia 1998-2002. Records of the Western Australian Museum Supplement 66.]	2004	Hutchins BJ (WAM)	1			1		
F005	Final Application to the Australia government department of the environmental and heritage on the northern demersal scalefish managed fishery Against the Guidelines for the Ecologically Sustainable Management of Fisheries	2004	DoF						
F011	Report on the results of the Western Australian Museum/Woodside Energy Ltd. partnership to explore the marine biodiversity of the Dampier Archipelago, Western Australia, 1998-2002	2004	Jones DS (WAM)	1					
F028	A five year management strategy for recreation fishing in the pilbara kimberly region of western australia	2005	DoF						
F044	Assets of the marine and coastal environment of the Dampier Archipelago, Western Australia : a register, July 2005	2005	M-Science						
F046	Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.	2005	DoCLM						
F007	Dredging Program for the Dampier Port Upgrade	2006	SKM	?					
F008	Review of Research and Data Relevant to Marine Environmental Management of Northwest shelf	2006	Heyward AJ (AIMS), Revill RT (CSIRO) and Sherwood CR (CSIRO)						
F009	Trophic webs and modelling of Australia's North West Shelf. NWSJEMS Technical Report 9.	2006	Bulman C	1					
F010	The spatial distribution of commercial fishery production on Australia's North West Shelf. NWSJEMS Technical Report 10.	2006	Althaus F, Woolley K, He X, Stephenson P, Little R						
F016	Materials stockpile and handling facilities for Cape Preston	2006	EPA						
F030	A 12 month survey of recreational fishing in the Pilbara region of Western Australia during 1999-2000	2006	Williamson, P.C.; Sumner, N. R.; and Malseed, B.E.						
F036	Cape Lambert Upgrade: Sampling and Analysis Plan Report. Prepared for the Robe River Iron Associates.	2006	SKM						
F001	Assessing the effectiveness of sanctuary zones in the proposed Dampier Archipelago Marine Park: Data collected during the 2007 survey. Marine Science Program Data Report Series: MSPDR6. January 2009.	2007	Armstrong SJ (DEC)	1	1				
F037	Dredging Program for the Cape Lambert Port Upgrade Environmental referral Document. Prepared for the Robe River Iron Associates	2007	SKM						
F054	Pluto LNG - Baseline Marine Habitat Survey, Report Prepared in Accordance with Requirements of Ministerial Condition 6-11 of the Pluto Ministerial Statement, Rev 1, 21 November 2008	2008	SKM	1	1				
F012	Independent Fauna Observer Final Report for the Pluto LNG Dredging Project IFO Report 2007-2010 [Compliance report 2010]	2010	Blue Planet Marine						
F025	State of the Fisheries reports – all years	1982 -	DoF						
F032	Recreational Fishing trends	No date	Rowley Shoals Marine Park - DEC						

Appendix 2 Table 2 Identified and prioritised datasets for finfish in the study area ordered by year of publication

F023	FMP 111 – Management Options for Pilbara Demersal Line Fishing [online access but some issue currently accessing]	No date	DoF						
F024	FMP 163 – Review of Recreational take of Coral in WA [J FIS]	No date	DoF						
F053	Tropical reef fish assemblages in a modified marine ecosystem	Unpublished draft manuscript 2011 (?)	Harvey ES, Mclean DL, Meeuwig JJ, Baxter K and Chatfield B	1	1				

## Appendix 2 Key Performance Indicator datasets

*Appendix 2 Table 3 Identified and prioritised datasets for invertebrates in the study area ordered by year of publication*

Appendix 2 Table 3 Identified and prioritised datasets for invertebrates in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest		Asset Pressure Indicators of Interest	
				Abundance	Diversity	TBA	TBA
I042	Environmental assessment of Nickol Bay, Dampier Archipelago : a proposal for trial bitterns discharge	1978	Dampier Salt Limited				
I051	Molluscs of the rocky shores of the Dampier Archipelago [In: Report on the marine fauna and flora of the Dampier Archipelago : unpublished reports submitted to Meagher and LeProvost]	1978	Slack-Smith SM (WAM)				
I063	Draft Environmental Impact Statement and Environmental Review and Management Programme	1979	Woodside Petroleum Development Pty. Ltd.				
I076	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 2	1981	LeProvost, Semeniuk and Chalmer	1	1		
I018	Heavy metal concentrations in the oysters <i>Saccostrea cucullata</i> and <i>Saccostrea</i> sp. (probably <i>S. commercialis</i> ) from the Dampier Archipelago, Western Australia.	1984	Talbot V				
I021	Seasonal variation of copper and zinc concentration in the oyster <i>saccostrea cucullata</i> from the dampier archipelago	1986	Talbot,V.				
I062	Shell collecting activities for Kimberley and Pilbara regions	1986	Marshall, K. J.		1		
I064	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1986	1986	Woodside Offshore Petroleum				
I071	Two new palaemonid shrimps (Crustacea: Decapoda) from the Australian North West Shelf	1988	Bruce, A. J.				
I054	Chemical and Ecological Monitoring of Mermaid Sound June 1991Survey First Annual Report	1991	Environmental Consultants				
I072	A new genus of hemibranchiate sphaeromatid isopod crustacean from tropical Western Australia	1992	Bruce, A. J.				
I058	Marine Monitoring of Dredging Operations in Mermaid Sound, WA - 1996. Internal report prepared for Woodside Offshore Petroleum	1996	ECOS Consulting				
I033	Imposex in <i>Morula granulata</i> as bioindicator of tributyltin (TBT) contamination in the Dampier Archipelago, Western Australia	1999	Reitsema TJ and Spickett JT	?			
I037	Water Corporation Dampier Marine Environmental Survey, Appendix D, Burrup Peninsula Desalinated Water and Seawater Supplies Project, Environmental Protection Statement, Environmental Impact Identification and Management. Rev 0	2001	Astron Environmental	1	1		
I059	Port Walcott Baseline Survey for Introduced marine Pests. Report to Robe River Iron and Associates	2002	Ecologia		1		
I009	Biology of <i>Conus</i> on shores of the Dampier Archipelago, northwestern Australia [In: Proceedings of the twelfth International Marine Biological Workshop : the marine flora and fauna of Dampier, Western Australia : held in Dampier from 24 July to 11 August	2003	Kohn AJ	1			
I010	The Terebellidae, Trichobranchidae and Pectinariidae (Polychaeta) of the Dampier Archipelago, Western Australia [In: Proceedings of the twelfth International Marine Biological Workshop : the marine flora and fauna of Dampier, Western Australia : held in Dampier from 24 July to 11 August	2003	Hutchings PA and Avery L		1		
I013	Heteropoda from Western Australian Waters	2003	Roger R. Seapy, Carol M. Lalli and Fred E. Wells	1	1		
I014	Feeding ecology of common intertidal Muricidae (Mollusca: Neogastropoda) from the Burrup Peninsula, Western Australia	2003	Tan Koh-Siang	1	1		
I015	The biogeography of Western Australian shallow-water barnacles	2003	Jones DS		1		
I028	Aspects of the ecology of the mudwhelks <i>Terebralia palustris</i> and <i>T. semistriata</i> in northwestern Australia	2003	Fred E. Wells and Carol M. Lalli				
I029	Australian <i>Aphelodoris</i> (Mollusca: Nudibranchia): two new species, sperm ultrastructure and a redescription of <i>Aphelodoris greeni</i> Burn	2003	Nerida G. Wilson				
I030	Pholadidae and Teredinidae (Mollusca: Bivalvia) collected from mangrove habitats on the Burrup Peninsula, Western Australia	2003	Anne Brearley, Kashane Chalermwat and Nopadon Kakhai	1	1		
I031	Acute hypo- and hypersaline activity responses relative to zonation of intertidal rocky shore and mangrove gastropods from the Burrup Peninsula, Western Australia	2003	Robert F. McMahon				
I032	Convective cooling by the tropical intertidal chiton, <i>Acanthopleura spinosa</i> (Mollusca: Polyplacophora) from rocky intertidal habitat at Watering Cove, Burrup Peninsula, Western Australia, Australia	2003	Joseph C. Britton and Brian Morton				
I034	Functional morphology and mode of life of <i>Isanda coronata</i> (Gastropoda: Trochidae) in an Australian macrotidal sandflat	2003	Hickman CS				
I035	The behaviour and feeding ecology of a suite of gastropod scavengers at Watering Cove, Burrup Peninsula, Western Australia	2003	Morton B and Britton JC				



Appendix 2 Table 3 Identified and prioritised datasets for invertebrates in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest		Asset Pressure Indicators of Interest	
				Abundance	Diversity	TBA	TBA
I036	Distribution, abundance and foraminiferal diet of an intertidal scaphopod, <i>Laevidentalium lubricatum</i> , around the Burrup Peninsula, Dampier, Western Australia	2003	Glover E etal				
I041	A new species of <i>Platydoris</i> (Mollusca: Nudibranchia) from North-Western Australia	2003	Fahey SJ and Valdés A				
I043	The feeding process in <i>Conus victoriae</i>	2003	Alan J. Kohn				
I044	A new arenicolous <i>Copidognathus</i> (Halacaridae: Acari) from Dampier, Western Australia	2003	Ilse Bartsch				
I045	A new species of the brevipalpus group, genus <i>Agauopsis</i> (Halacaridae: Acari) from Dampier, Western Australia: description and key to related species	2003	Ilse Bartsch				
I046	Five new species of the water mite family Pontarachnidae from Western Australia (Acari: Hydrachnidia)	2003	Harry Smit				
I047	Marine Tubificidae (Oligochaeta) of the Dampier area, Western Australia	2003	Christer Erséus and Hongzhu Wang	1	1		
I048	<i>Grania ocarina</i> sp.n., <i>G. darwinensis</i> (Coates and Stacey) comb.n., and other marine Entchytraeidae (Oligochatea) from the Dampier area, Western Australia	2003	Emilia Rota, Christer Erséus and Hongzhu Wang	1	1		
I055	Review of Coral Surveillance Monitoring for the ChEMMS Programme. Report prepared for Woodside.	2003	URS Australia				
I061	<i>Astropecten subbawanus</i> (Echinodermata: Asteroidea) in Withnell Bay, northwestern Australia (In: The Marine Flora and Fauna of Dampier, Western Australia, Western Australian Museum, Perth)	2003	Wells, Fred E. and Lalli, Carol M.		1		
I003	A survey of the benthic molluscs of the Dampier Archipelago, Western Australia [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia	2004	Slack-Smith SM and Bryce CW (WAM)		1		
I004	Barnacles (Cirripedia: Thoracica) of the Dampier Archipelago, Western Australia [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia	2004	Jones DS (WAM)		1		
I005	Crustacea (excluding Cirripedia) of the Dampier Archipelago, Western Australia [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia	2004	Hewitt MA (WAM)		1		
I006	Diversity and distribution of subtidal benthic molluscs from the Dampier Archipelago, Western Australia : results of the 1999 dredge survey (DA2/99) [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore	2004	Taylor JD and Glover EA (WAM)	1	1		
I007	Echinoderms of the Dampier Archipelago, Western Australia [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia 1998-2002.	2004	Marsh LM and Morrison SM (WAM)		1		
I008	Porifera (sponges) of the Dampier Archipelago, Western Australia : habitats and distribution [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia	2004	Fromont J (WAM)		1		
I026	Amphipoda (Crustacea) collected from the Dampier Archipelago, Western Australia [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia	2004	Peart RA (WAM)	1	1		
I038	Other marine invertebrates collected by the diving expedition DA1/98 in the Dampier Archipelago, Western Australia [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the D	2004	Salotti M, Griffith JK and Fromont J (WAM)				
I053	Survey of seabed habitat damage from dredging and pipelay barge anchoring during TSEP pipeline installation. Report prepared by IRC Environment for Woodside.	2004	Consultants Environment				
I056	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside Energy Limited.	2004	URS Australia	1	1		
I057	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2005. Report Prepared for Woodside.	2005	URS Australia				
I066	Assets of the marine and coastal environment of the Dampier Archipelago, Western Australia : a register, July 2005	2005	M-Science				
I070	Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.	2005	DoCLM				
I023	Cape Lambert Upgrade Sampling and Analysis Plan Report Rev 1 20 January 2006. Prepared for the Robe River Iron Associates.	2006	SKM	1	1		
I069	Review of research and data relevant to the marine and terrestrial environment of Dampier	2006	Jackson, K. J. , Paling, E. I., Stoddart, J. A.				
I001	Assessing the effectiveness of sanctuary zones in the proposed Dampier Archipelago Marine Park : data collected during the 2007 survey	2007	Armstrong SJ	1			
I002	Marine sponges of the Dampier Archipelago, Western Australia: patterns of species distributions, abundance and diversity	2007	Fromont J, Vanderklift M and Kendrick G	1	1		
I024	Dredging Program for the Cape Lambert Port Upgrade Environmental referral Document. Prepared for the Robe River Iron Associates	2007	SKM				



Appendix 2 Table 3 Identified and prioritised datasets for invertebrates in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest		Asset Pressure Indicators of Interest	
				Abundance	Diversity	TBA	TBA
I052	Crustaceans collected by the Western Australian Museum/Woodside Energy Ltd. partnership to explore the marine biodiversity of the Dampier Archipelago, Western Australia, 1998-2002 -- Marine biodiversity of the Dampier Archipelago, Western Australia, 1998-	2007	Jones DS				
I019	Cape Lambert Port Upgrade_Pre and post disposal infauna monitoring	2008	SKM	1	1		
I073	Pluto LNG - Baseline Marine Habitat Survey, Report Prepared in Accordance with Requirements of Ministerial Condition 6-11 of the Pluto Ministerial Statement, Rev 1, 21 November 2008	2008	SKM	1	1		
I020	Cape Lambert Port Upgrade_12 month post disposal infauna monitoring	2009	SKM	1	1		
I016	Anketell Point Port Development Proposal PER/draft PER; PART 3 MARINE ENVIRONMENTAL IMPACT ASSESSMENT   SECTION 9 MARINE FAUNA	2010	AECOM				
I017	West Pilbara Iron Ore Project Stage 1 Anketell Point Port Development Proposal [Associated with MAS881]	2010	AECOM				
I067	King Bay Biomonitoring Report 2009-2010 [Mermaid Marine Annual Compliance Monitoring]	2010	AECOM				
I068	Laboratory Reports. [Appendix A In: King Bay Biomonitoring Report 2009-2010, Mermaid Marine Annual Compliance Monitoring]	2010	AECOM				
I011	API West Pilbara Iron Ore Project - Stage 1 Bouguer Passage Reef Habitat Assessment. Supporting document 7.8, Appendix 2 Anketell Point Port Development Proposal Public Environmental Review/Final Public Environment Report	2011	API				
I065	Habitats and Invertebrate Assemblages of Bouguer Passage and their Regional Significance. Supporting document 7.9, Appendix 2 Anketell Point Port Development Proposal Public Environmental Review/Final Public Environment Report	2011	Wilson BR (Murex Consultants)		1		
I074	Pluto LNG Development Post-Dredging Benthic Habitat Survey Rev 2 28 January 2011	2011	SKM	1	1		
I075	Pluto LNG Development Post Dredging Drop Camera Post Dredge Survey 2011 [M-Science report MSA163R1 - Associated with MAS 757]	2011	Mscience	1	1		
I040	Food of giants – field observations on the diet of Syrinx aruanus (Linnaeus, 1758) (Turbinellidae) the largest living gastropod		John D. Taylor and Emily A. Glover				
I050	Monitoring program and compliance reporting associated with Ministerial 116 for Dampier Solar Salt Field Enhancement						

A total of 69 studies/datasets identified to be of relevance to the invertebrate asset

## Appendix 2 Key Performance Indicator datasets

*Appendix 2 Table 4 Identified and prioritised datasets for intertidal sand and mudflat communities in the study area ordered by year of publication*

Appendix 2 Table 4 Identified and prioritised datasets for intertidal sand and mudflat communities in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest		Asset Pressure Indicators of Interest	
				Abundance	Diversity	TBD	TBD
ISMC016	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 1	1980	LeProvost, Semeniuk and Chalmer	1	1		
ISMC015	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 2	1981	LeProvost, Semeniuk and Chalmer	1			
ISMC005	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1983 (attachment 3)	1983	Woodside Offshore Petroleum	1	1		
ISMC006	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1984	1984	Woodside Offshore Petroleum				
ISMC013	Heavy metal concentrations in the oysters <i>Saccostrea cucullata</i> and <i>Saccostrea</i> sp. (probably <i>S. commercialis</i> ) from the Dampier Archipelago, Western Australia.	1984	Talbot V				
ISMC007	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1985	1985	Woodside Offshore Petroleum				
ISMC008	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1986	1986	Woodside Offshore Petroleum				
ISMC018	The ecological significance of the blue-green algal mats in the Dampier mangrove ecosystem	1986	Paling E I				
ISMC035	The mangroves of the Dampier Archipelago	1987	Semeniuk, and Wurm	1	1		
ISMC009	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1989	1989	Woodside Offshore Petroleum				
ISMC010	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1990	1990	Woodside Offshore Petroleum				
ISMC028	Chemical and Ecological Monitoring of Mermaid Sound June 1991Survey First Annual Report	1991	LeProvost Environmental Consultants				
ISMC011	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1992	1992	Woodside Offshore Petroleum				
ISMC032	Marine Monitoring of Dredging Operations in Mermaid Sound, WA - 1996. Internal report prepared for Woodside Offshore Petroleum	1996	ECOS Consulting				
ISMC036	Cape Lambert Port Facility Extensions: Marine Environmental Impact Assessment. Report to Robe River Iron Associates by Ecologia Environmental Consultants	1997	Ecologia				
ISMC026	Investigative Sampling at King Bay	1998	Astron Engineering				
ISMC033	Dampier Marine Services Facility Vol.1: Environmental impact identification and management. Unpublished report ref 918-RV-01 to Mermaid Marine Sept 1998	1998	Astron Environmental				
ISMC034	Dampier Marine Services Facility: Environmental Investigations at King Bay. Unpublished report ref 930-RA-01 for Mermaid Marine May 1999	1999	Astron Environmental				
ISMC014	Baseline Survey of Benthic Marine Communities of Cape Preston and Preston Island Appendix A in: Cape Preston Benthic Habitats 2008	2000	Campey & Gilmore				
ISMC020	Dampier Archipelago/Cape Preston regional perspectives	2000	Osbourne,S Bancroft.K				

Appendix 2 Table 4 Identified and prioritised datasets for intertidal sand and mudflat communities in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Condition Indicators of Interest		Asset Pressure Indicators of Interest	
				Abundance	Diversity	TBD	TBD
ISMC037	Developing a broadscale habitat map for the Montebello/Barrow islands and the Dampier Archipelago/Cape Preston regions : Marine Reserve Implementation, Pilbara : a collaborative project between CALM Marine Conservation Branch and the Pilbara Regional Office	2000	Bancroft KP, Sheridan MW and Davidson JA (CALM)				
ISMC027	Water Corporation Dampier Marine Environmental Survey	2001	IRC Environment				
ISMC029	Review of Coral Surveillance Monitoring for the ChEMMS Programme. Report prepared for Woodside.	2003	URS Australia				
ISMC030	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside Energy Limited.	2004	URS Australia				
ISMC031	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2005. Report Prepared for Woodside.	2005	URS Australia				
ISMC039	Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.	2005	DoCLM				
ISMC038	Review of research and data relevant to the marine and terrestrial environment of Dampier	2006	Jackson, K. J. , Paling, E. I., Stoddart, J. A.				
ISMC003	Cape Lambert Port B Development Abundance and distribution of inter and subtidal benthic habitats in the Cape Lambert area: 2008 survey.	2008	SKM/RioTinto		1		
ISMC004	Population dynamics of the western Australian soldier crab <i>mictyris occidentalis</i>	2008	Unno and Semeniuk	1			
ISMC012	Cape Lambert Benthic Habitat Mapping: benthic marine habitats at Cape Lambert West, Bezout, Dixon and Delambre Islands. Supporting Document 7.4, Appendix 1, Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Repo	2008	M-Science				
ISMC023	Cape Lambert Port B Development, baseline intertidal report (for Rio Tinto Iron Ore)	2009	SKM				
ISMC001	Anketell Point Port Marine Benthic Habitat Assessment	2010	AECOM		1		
ISMC024	Anketell Point and Dixon Island Proposed Port Development Area Level 2 Flora and Vegetation Assessment. Supporting document 12.1, Appendix 1 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	2010	AECOM				
ISMC025	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Coastal Habitat Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	2010	AECOM				
ISMC002	Anketell Point Port Development Proposal PER/draft PER;	2011	AECOM				
ISMC019	Habitats and Invertebrate Assemblages of Bouguer Passage and their Regional Significance. Supporting document 7.9, Appendix 2 Anketell Point Port Development Proposal Public Environmental Review/Final Public Environment Report	2011	Wilson BR (Murex Consultants)		1		
ISMC021	Woodside Offshore Petroleum ChEMMS monitoring program. Data and reports.	1983-?					

A total of 37 studies/datasets identified to be of relevance to the intertidal sand and mudflat communities asset

## Appendix 2 Key Performance Indicator datasets

*Appendix 2 Table 5 Identified and prioritised datasets for subtidal soft sediment communities in the study area ordered by year of publication*

Appendix 2 Table 5 Identified and prioritised datasets for subtidal soft sediment communities in the study area ordered by year of publication

ID	Study/Dataset	Publication Year	Author	Abundance	Diversity
SSBC001	Cape Lambert Port B Development Benthic primary producer habitat (BPPH) monitoring report (Subtidal)	2009	SKM	1	1
SSBC002	Benthic habitat dynamics and models on Australia's North West Shelf technical report 11	2006	North West Shelf Joint Environmental Study	1	1
SSBC003	Anketell Point Port Marine Benthic Habitat Assessment. Supporting document 7.5, Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	2010	AECOM	1	1
SSBC004	Habitats and Invertebrate Assemblages of Bouguer Passage and their Regional Significance. Supporting document 7.9, Appendix 2 Anketell Point Port Development Proposal Public Environmental Review/Final Public Environment Report	2011	Wilson BR (Murex Consultants)		1
SSBC005	Baseline Survey of Benthic Marine Communities of Cape Preston and Preston Island Appendix A in: Cape Preston Benthic Habitats 2008	2000	Campey & Gilmore	1	1
SSBC006	Benthic Primary Producer Habitat Assessment Cape Lambert Upgrade Dredging Programme	2007	SKM	1	1
SSBC007	Water Corporation Dampier Marine Environmental Survey, Appendix D, Burrup Peninsula Desalinated Water and Seawater Supplies Project, Environmental Protection Statement, Environmental Impact Identification and Management	2001	Astron Environmental	1	1
SSBC008	AUSI Iron Project, Infrastructure Requirements, Consultative Environmental Review, Madigan Point Marine Survey (Marine Survey, Appendix D, In: AUSI Iron Project, Infrastructure Requirements, Consultative Environmental Review March 1996	1996	LeProvost Dames & Moore		
SSBC009	Dampier Archipelago/Cape Preston regional perspectives	2000	Osbourne, S Banoroff, K		
SSBC010	The algae and seagrasses of the dampier archipelago	unpublished	Borowaitzka, M.A et al		
SSBC011	Cape Lambert Upgrade Sampling and Analysis Plan Report Rev 1 20 January 2006. Prepared for the Robe River Iron Associates.	2006	SKM	1	1
SSBC012	Dredging Program for the Cape Lambert Port Upgrade Environmental referral Document. Prepared for the Robe River Iron Associates	2007	SKM		
SSBC014	Monitoring and reporting associated with Ministerial Approval Statement 644 for Hamersley Iron Pty Ltd - Hamersley Iron Dredging Program for the Dampier Port Upgrade	2003			
SSBC015	Monitoring and reporting associated with Ministerial Approval Statement 702 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to a Throughput Capacity of 120 million Tonnes Per Annum	2005			
SSBC016	Monitoring and reporting associated with Ministerial Approval Statement 638 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to 95 MTPA Capacity	2003			
SSBC018	1994 LPG Jetty and Ship-Turning Basin Dredging Programme Marine Monitoring Programme [ Appendix D In: North West Shelf Venture Additional Liquefied Natural Gas (LNG) Facilities Public Environmental Review (WA) and Public Environmental Report (Commonwealth)]	1994	LeProvost Dames & Moore		
SSBC019	Survey of seabed habitat damage from dredging and pipelay barge anchoring during TSEP pipeline installation. Report prepared by IRC Environment for Woodside.	2004	International Risk Consultants Environment		
SSBC020	Chemical and Ecological Monitoring of Mermaid Sound June 1991 Survey First Annual Report	1991	LeProvost Environmental Consultants		
SSBC021	Review of Coral Surveillance Monitoring for the ChEMMS Programme. Report prepared for Woodside.	2003	URS Australia		
SSBC022	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside Energy Limited.	2004	URS Australia		
SSBC023	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside.	2005	URS Australia		
SSBC024	"A final report summarising the results, analyses and interpretation of the particle size distribution monitoring will be provided to the DEC."	?	?		
SSBC025	Marine Monitoring of Dredging Operations in Mermaid Sound, WA - 1996. Internal report prepared for Woodside Offshore Petroleum	1996	ECOS Consulting		
SSBC026	Investigative Sampling at King Bay	1998	Astron Engineering		
SSBC027	Reports associated with infauna monitoring referred to in section 6.9 of the 'Dampier Port Dredging: Dredging and Dredge Spoil Disposal Management Plan' (SKM, 2006. For Hamersley Iron) [Associated with MAS 731]	?	SKM? Mscence?	?	?
SSBC028	Draft Environmental Impact Statement and Environmental Review and Management Programme	1979	Woodside Petroleum Development Pty. Ltd.		
SSBC029	Dampier Marine Services Facility. Assessment on Proponent Information	2011	Worley Parsons		1
SSBC030	Benthic Habitat Losses with Dampier Archipelago and Implications of this Project [Appendix 15. In: Dampier Marine Services Facility. Assessment on Proponent Information]	2009	Worley Parsons	1	
SSBC031	Benthic Habitat Report [Appendix 10 In: Dampier Marine Services Facility. Assessment on Proponent Information]	2009	Worley Parsons	1	1
SSBC032	Review of research and data relevant to the marine and terrestrial environment of Dampier	2006	Jackson, K. J., Palling, E. I., Stoddart, J. A.		
SSBC033	A general description of the subtidal habitats of the Dampier Archipelago, Western Australia	2004	Morrison, Peter F.		
SSBC034	Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.	2005	DoCLM		
SSBC035	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 1	1980	LeProvost, Semeniuk and Chalmer	1	1
SSBC036	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 2	1981	LeProvost, Semeniuk and Chalmer	1	1
SSBC037	1994 LPG Jetty and Ship-Turning Basin Spoil Disposal Programme Marine Monitoring Programme [Report to Woodside Offshore Petroleum Pty Ltd]	1995	LeProvost Dames and Moore	1	1

## Appendix 2 Key Performance Indicator datasets

*Appendix 2 Table 6 Identified and prioritised datasets for mangrove communities in the study area ordered by year of publication*

Appendix 2 Table 6 Identified and prioritised datasets for mangrove communities in the study area ordered by year of publication

ID	Study/Dataset	Publication Year	Author	Asset Condition Indicators of Interest					Asset Pressure Indicators of Interest	
				Extent*	Canopy Cover	Tree Density	Foliage Condition	Mortality	Salinity	TBA
MC001	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1983 (attachment 1 and 2)	1983	Woodside Offshore Petroleum	1				1	1	
MC002	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1984	1984	Woodside Offshore Petroleum					1	1	
MC003	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1985	1985	Woodside Offshore Petroleum							
MC004	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1986	1986	Woodside Offshore Petroleum						1	
MC005	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1989	1989	Woodside Offshore Petroleum				1	1		
MC006	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1990	1990	Woodside Offshore Petroleum							
MC007	North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1992	1992	Woodside Offshore Petroleum							
MC008	Anketell Point Port Benthic Primary Producers [Supporting document 7.6, Appendix 1 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report]	2010	AECOM	1	1					
MC009	Fauna and Flora Survey of Western Lease No. 5976H [Appendix 8, Environmental assessment of the temporary reserves nos. 5975H and 5976H. Prepared for Dampier Salt (Operations) Pty Ltd]	1980	LeProvost, Semeniuk and Chalmer							
MC010	A preliminary study of the mangroves of the Dampier Archipelago, Western Australia	1983	Gordon DM (DCE)		1			1	1	
MC011	Mangrove Condition and Rehabilitation Monitoring Report 2008, Appendix H, Annual Environmental Compliance Report 2009 (AECOM, 2009) [Prepared for Mermaid Marine Pty Ltd under MAS 535 - Upgrade of Marine Services Facility, King Bay, Dampier]	2009	AECOM		1	1				
MC012	2007 Mangrove Monitoring Program [Appendix 7, Annual Environmental Compliance Report 2007, Worley Astron for Mermaid Marine Australia. Associated with MAS 535]	2007	Worley Astron			1				
MC013	Mangrove Rehabilitation Programme Status Report December 2001 [Prepared for Mermaid Marine Australia Limited. Associated with MAS535]	2001	Mermaid Marine					1		
MC014	Mermaid Marine Mangrove Monitoring and Rehabilitation Annual Report 2005 [Prepared for Mermaid Marine Australia Limited. Associated with MAS535]	2005	Worley Astron			1				
MC015	Mermaid Marine Mangrove Monitoring and Rehabilitation Annual Report 2006 [Associated with MA	2006	Worley Astron							



Appendix 2 Table 6 Identified and prioritised datasets for mangrove communities in the study area ordered by year of publication

MC016	Mermaid Marine Dampier Marine Services Facility Triennial Environmental Report 2006 [Prepared for Mermaid Marine Australia Pty Ltd. Associated with MAS535]	2006	Worley Astron			1				
MC017	Mangrove Condition and Rehabilitation Monitoring King Bay, Burrup Peninsula, Annual Report - July 2007 [Annual Environmental Compliance Report 2007. Prepared for Mermaid Marine Australia Ltd. Associated with MAS 535]	2007	Astron		1					
MC019	Mermaid Marine Mangrove Monitoring Program 2012 Mangrove Monitoring Program Report. Rev 1. 12 July 2012 [Appendix D, Upgrade of Marine Services Facility, King Bay, Dampier Ministerial Statement No. 535 2011-12 Annual Compliance and 2006-2012 Performance Review July 2012. Mermaid Marine Australia (2012); Associated to MAS535]	2012	SKM	1						
MC020	Mangrove Condition and Rehabilitation Monitoring Report [Appendix H, Annual Environmental Compliance Report 2009 - 2010. Prepared for Mermaid Marine Limited. Associated with Mas 535]	2010	AECOM			1				
MC021	Marine biological monitoring programme, Burrup Peninsula, Western Australia, phase 2	1981	LeProvost, Semeniuk and Chalmer			1		1		
MC022	Mangrove monitoring programmes. A. Spoil area no. 4; B. King Bay causeway : report to Woodside Offshore Petroleum	1981	LeProvost, Semeniuk and Chalmer							
MC023	Selection of Mangrove Stands for Conservation in the Pilbara Region of Western Australia - a Discussion. 30th June 1997 (updated 28th July 1997) [Report to Department Resources and Development]	1997	V and C Semeniuk Research Group							
MC024	Mangroves of Western Australia	1978	Semeniuk, Wilson and Kenneally							
MC025	The Mangroves of the Dampier Archipelago Western Australia	1987	Semeniuk and Wurm						1	
MC026	Salt field expansion : consultative environmental review	1990	Dampier Salt (Operations) Pty Ltd							
MC027	The Burrup Peninsula and Dampier Archipelago, Western Australia:marine an introduction to the history of its discovery and study, habitats and their flora and fauna [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partner	2004	Diana S. Jones							
MC028	Anketell Point Port Marine Benthic Habitat Assessment	2010	AECOM							
MC029	Dampier Archipelago/Cape Perston regional perspectives	2000	Osbourne,S Bancroft.K							
MC030	nitrogen fixation in nonhetercystous cyanobaterical mats from the dampier archipelago In: Aust J Mar Freshwater Res, vol: 40, pg: 147-153	1989	Paling,E.I							
MC031	API West Pilbara Iron Ore Project - Stage 1 Pope's Nose Creek Mangrove Assessment	2011	API		1					
MC032	Guidance for the Assessment of Environmental Factors Western Australia (in accordance with the Environmental Protection Act 1986) No. 1 April 2001 Guidance Statement for protection of tropical arid zone mangroves along the Pilbara coastline	2001	EPA							

Appendix 2 Table 6 Identified and prioritised datasets for mangrove communities in the study area ordered by year of publication

MC033	Cape Preston Iron Ore Project Project Environmental Management Plan	2009	Mineralogy							
MC034	Environmental assessment of proposed marine dredge spoil grounds in the dampier archipelago	1985	LeProvost Semeniuk & Chalmers							
MC035	Browsing of mangroves by green turtles in western australia	No date	Pendoly, K.							
MC036	Pilbara mangrove study	1996	Carr, B.; Livesey, N. and Paling, E.							
MC037	Investigative sampling at King Bay. Unpublished report ref 916-RS-02 to Mermaid Marine by Astron Engineering, June 1998	1998	Astron Engineering							
MC038	Dampier Marine Services Facility Vol.1: Environmental impact identification and management. Unpublished report ref 918-RV-01 to Mermaid Marine Sept 1998	1998	Astron Environmental							
MC039	Dampier Marine Services Facility: Environmental Investigations at King Bay. Unpublished report ref 930-RA-01 for Mermaid Marine May 1999	1999	Astron Environmental							
MC040	Reports associated with monitoring programs 1, 2, 5, 6, 7 and 8 in the Dampier Operations Marine Management Program	Annual report?	?							
MC041	Hamersley Iron Maintenance Dredging, Dampier Shipping Channel, Environmental Monitoring Programme, Final report - November 1990.", Unpublished Report No. R 322, November 1990 to Hamersley Iron Pty Ltd, Perth WA.	1990	LeProvost Environmental Consultants							
MC042	Monitoring program and compliance reporting associated with Ministerial 116 for Dampier Solar Salt Field Enhancement									
MC043	Monitoring and reports associated with Ministerial Approval Statement 823 for Mineralogy Pty Ltd - Balmoral South Iron Ore Project, Cape Preston, Shire of Roebourne	2009								
MC044	Monitoring and reporting associated with Ministerial Approval Statement 644 for Hamersley Iron Pty Ltd - Hamersley Iron Dredging Program for the Dampier Port Upgrade	2003								
MC045	Monitoring and reporting associated with Ministerial Approval Statement 731 for Hamersley Iron Pty Ltd - Hamersley Iron Dredging Program for the Dampier Port Upgrade	2006								
MC046	Monitoring and reporting associated with Ministerial Approval Statement 638 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to 95 MTPA Capacity	2003								
MC047	Management plans, monitoring and reporting associated with Ministerial Approval Statement 535 for Mermaid Marine Australia Pty Ltd - Upgrade of Marine Sservices, King Bay, Dampier	2000								
MC048	Environmental Management Programme, monitoring and compliance reporting associated with Ministerial Approval Statement 410 for Australian United Steel Industry Pty Ltd	1996								
MC049	Study of the impacts of Pilbara coastal developments on arid zone mangroves	1994	V and C Semeniuk Research Group							

Appendix 2 Table 6 Identified and prioritised datasets for mangrove communities in the study area ordered by year of publication

MC050	Anketell Point and Dixon Island Proposed Port Development Area Level 2 Flora and Vegetation Assessment. Supporting document 12.1, Appendix 1 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	2010	AECOM		1					
MC051	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Coastal Habitat Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	2010	AECOM	1						
MC052	West Pilbara Iron Ore Project Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report. Associated with Ministerial Approval Statement 881	2010	API							
MC053	Functional morphology and mode of life of <i>Isanda coronata</i> (Gastropoda: Trochidae) in an Australian macrotidal sandflat [In: The Marine Flora and Fauna of Dampier, Western Australia]	2003	Hickman CS							
MC054	Woodside Offshore Petroleum ChEMMS monitoring program. Data and reports.	1983-?	Woodside Offshore Petroleum							
MC055	Chemical and Ecological Monitoring of Mermaid Sound June 1991 Survey First Annual Report	1991	LeProvost Environmental Consultants							
MC056	Review of Coral Surveillance Monitoring for the ChEMMS Programme. Report prepared for Woodside.	2003	URS Australia							
MC057	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside Energy Limited.	2004	URS Australia		1		1			
MC058	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside.	2005	URS Australia							
MC059	Marine Monitoring of Dredging Operations in Mermaid Sound, WA - 1996. Internal report prepared for Woodside Offshore Petroleum	1996	ECOS Consulting							
MC060	Water Corporation Dampier Marine Environmental Survey	2001	IRC Environment							
MC061	Dampier Inner Harbour Marine Habitats Survey." Unpublished Report to Hamersley Iron by Environmental Contracting Services, Perth WA.	1995	ECS							
MC062	Dampier Marine Environmental Study - Review & Survey Report.", Unpublished report by IRC Environment for Hamersley Iron Pty Limited, Perth, WA.	2000	IRC Environment							

Appendix 2 Table 6 Identified and prioritised datasets for mangrove communities in the study area ordered by year of publication

MC063	Community structure and zoogeographic affinities of the coast fishes of dampier region of north west WA [In: Australian Journal of Marine and Freshwater Research, 1985, 36, 247-266]	1985	Blaber, S.J							
MC064	Aerial Photographs used to analyse discrete mangrove communities in certain areas	1981-?(at least 1991)	Woodside Offshore Petroleum	1						
MC065	Investigations into the effect of condensate on the sediments and mangroves of Withnell Bay. Document No. ENV0150, November 1990. [Technical Appendix 3 in: North West Shelf Gas Development (Woodside) Agreement : interim report on environmental investigations and monitoring 1992; however it isn't with the report]	1990	Woodside Offshore Petroleum	?	?	?	?	?		
MC066	Change analysis of the mangrove populations proximal to the bitterns release channel, Nickol Bay, Western Australia, from an analysis of remotely sensed data[Appendix E Of Dampier Salit Limited - URS annual Environmental Report - Associated with MAS638]	2003	Caccetta, M. and Tapley, I. (CSIRO)		1		1	1		
MC067	AECOM report on Environmental management of eastern lease sites operations [Associated with MAS116]	2005	Maunsell/ AECOM		1				1	
MC068	AECOM Dampier Port and Port Hedland Aerial imaging of Mangroves [ Associated with MAS116]	2007	AECOM		1					
MC069	AECOM Groundtruthing Mangrove impact assessment Dampier and Port Hedland [Assosciated with MAS116]	2007	AECOM							
MC070	Disturbance to Mangroves in Tropical-Arid Western Australia: Hypersalinity and Restricted Tidal Exchange as Factors Leading to Mortality	1987	Gordon, D.M.	1				1	1	
MC071	Balmoral South Iron Ore Project, Cape Preston, WA - Report and recommendations of the Environmental Protection Authority	2009	EPA							
MC072	Maitland heavy industrial estate, Karratha Landcorp / Department of Resources Development : advice to the Minister for the Environment from the Environmental Protection Authority under Section 16(e) of the Environmental Protection Act 1986	1997	EPA							
MC073	Developing a broadscale habitat map for the Montebello/Barrow islands and the Dampier Archipelago/Cape Preston regions : Marine Reserve Implementation, Pilbara : a collaborative project between CALM Marine Conservation Branch and the Pilbara Regional Office	2000	Bancroft KP, Sheridan MW and Davidson JA (CALM)							
MC074	Introduction to the marine environment of Dampier, Western Australia [In: The Marine Flora and Fauna of Dampier, Western Australia]	2003	Fred E. Wells and Diana I. Walker							

Appendix 2 Table 6 Identified and prioritised datasets for mangrove communities in the study area ordered by year of publication

MC075	Assets of the marine and coastal environment of the Dampier Archipelago, Western Australia : a register, July 2005	2005	M-Science							
MC076	Review of research and data relevant to the marine and terrestrial environment of Dampier	2006	Jackson, K. J. , Paling, E. I., Stoddart, J. A.							
MC077	Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.	2005	DoCLM							

\* Historical time-series dataset of mangrove community extent to be developed using remote sensing techniques with archived aerial photography - see main body of mangrove community text in Appendix B1

## Appendix 2 Key Performance Indicator datasets

*Appendix 2 Table 7 Identified and prioritised datasets for water quality in the study area ordered by year of publication*

Appendix 2 Table 7 Identified and prioritised datasets for water quality in the study area ordered by year of publication

ID	Study/Dataset Title	Publication Year	Author	Asset Indicators of Interest										
				Turbidity / TSS	Hydrocarbons	Light Attenuation	Sedimentation	Litter	TBT / Metals	Sea Water Temp	Nitrogen	Phosphates	Chl a	Mean Wave Height
WQ162	Nickol Bay Coastal Station Data 1970 [see metadata link]	1970	CSIRO							?				
WQ071	Dampier archipelago historic site survey	1979	MacIlroy J											
WQ091	The growth of marine fouling on a proposed platform offshore from dampier WA Phase 1 and 2	1979	Chalmer, P.N											
WQ064	Marine Systems of the Dampier Archipelago	1981	Chittleborough ,R.G											
WQ060	Monitoring of pipe trench spoil disposal, Contract 269C, prepared for Woodside Offshore Petroleum Pty Ltd, Interim Report for Fieldwork Conducted in October, 1982	1982	TD Meagher and Associates			1	1		1	1	1	1	1	
WQ061	Environmental monitoring programme conducted in Mermaid Sound for Woodside Offshore Petroleum Pty Ltd : interim report	1982	TD Meagher and Associates			1	1		1					
WQ084	Some effects of waves and tidal currents on the coast and continental shelf near dampier	1982	Chappell, J.											
WQ067	Bitterns discharge program; annual monitoring report	1983	Dampier Salt											
WQ173	Polycyclic aromatic hydrocarbons in rock oysters from Mermaid Sound, Western Australia	1983	WAIT: The Petroleum Geochemistry Group							1				1
WQ130	Environmental Monitoring of Pipeline Installation in Mermaid Sound. Report prepared by Meagher and Associates for Woodside.	1984	Meagher TD and Associates			?	?		1	1				
WQ171	Heavy metal concentrations in the Oysters Saccostrea cucullata and Saccostrea sp. from the Dampier Archipelago, Western Australia [Australian Journal of Marine and Freshwater Research, 1985, 36, 169-75]	1984	Talbot, V.						1	1				
WQ038	Community structure and zoogeographic affinities of the coastal fishes of the Dampier region of North-Western Australia [In: Australian journal of marine and freshwater research. - Vol. 36 (1985)]	1985	Blaber SJM et al	1					1	1				
WQ045	Technical report on suspended matter in Mermaid Sound, Dampier Archipelago	1985	Forde MJ (DCE)	1		1	1							
WQ078	enviromental assessment of the proposed mairne dredge spoil grounds	1985	LeProvost											?
WQ083	Mineralogical variation within the marine sediment of the dampier region: a dynamic approach	1985	Talbolt V											
WQ096	Chemical and ecological monitoring of Mermaid Sound : second annual report	1986	LeProvost, Semeniuk and Chalmer											
WQ098	Woodside Offshore Petroleum Pty Ltd . Spoil dumping permit. Intensive water quality survey of dredge spoil : preliminary report	1986	LeProvost, Semeniuk and Chalmer						1	1	1	1	1	
WQ170	The ecological significance of blue-green algae in the Dampier Archipelago, In: Technical Series 2, Department of Conservation and Land Management	1986	Paling EI							1				
WQ097	LNG shipping channel; dredging project : water quality surveys January 1987	1987	LeProvost, Semeniuk and Chalmer											
WQ127	Woodside Offshore Petroleum Pty LTD LNG Shipping Channel Spoil Dumping Permit Water Quality Surveys to June 1987. Report prepared for Woodside	1987	LeProvost, Semenuik and Chalmer							1				1
WQ085	Port Walcott Oil Spill Enviromental Investigation; Report for Robe River Iron associates	1988	Bowman Bishaw Gorham							1				





Appendix 2 Table 7 Identified and prioritised datasets for water quality in the study area ordered by year of publication

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Appendix 2 Table 7 Identified and prioritised datasets for water quality in the study area ordered by year of publication

WQ152	Trunkline System Expansion Project- Pipeline coral and water quality monitoring - Final Report [Assocaited with MAS482]	2004	IRC Environment			1	1							
WQ160	King Bay Water Quality Monitoring Program [Appendix 10 to the BFPL Annual Environmental Report -Associated with MAS567-594]	2004	SKM											
WQ163	Water Quality Monitoring Data [Appendix E, Dampier Port Upgrade to 95 Mtpa Capacity, Monthly Marine Monitoring Report, July 2004, Final (SKM report - DPU-REF-125 Rev B). Associated with MAS 638]	2004	SKM	1										
WQ164	Water Quality Monitoring Data [Appendix F, Dampier Port Upgrade to 95 Mtpa Capacity, Monthly Marine Monitoring Report, September 2004, Final (SKM report - DPU-REF-125 Rev B). Associated with MAS 638]	2004	SKM	1										
WQ106	Monitoring and reporting associated with Ministerial Approval Statement 702 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to a Throughput Capacity of 120 million Tonnes Per Annum	2005												
WQ151	Environmental Management of Eastern Lease Sites Operations [Associated with MAS116]	2005	Maunsell / AECOM											
WQ156	Dampier Marine Service facility: Marine Sediments and Water Monitoring Results [Associated with MAS535]	2005	Worley Astron											
WQ157	Mermaid Marine March 2005 Marine Sediment Sampling Report [Associated to MAS535]	2005	Worley Astron											
WQ158	Mermaid Marine - Dampier Marine Service Facility - Proposed Amendments to Water and Sediment Quality Monitoring Programs [Associated to MAS535]	2005	Worley Astron											
WQ167	Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.	2005	DoCLM											
WQ012	Background quality for coastal marine waters of the North West Shelf, Western Australia [NWSJEMS Technical Report 18]	2006	Wenziker K, McAlpine K, Apte S, and Masini R		1									
WQ019	Dampier Port Dredging. Dredging and Dredge Spoil Disposal Management Plan [Revision 9, 7 December 2006. Report to Hamersly Iron. Associated to MAS731]	2006	SKM	1										
WQ036	Technical Report 6 North West Shelf Joint Environmental Management Study, Modelling circulation and connectivity on Australia's north west shelf.	2006	Condie S, Andrewartha J, Mansbridge J & Waring J											
WQ082	Background quality for coastal marine waters of the north west shelf, western australia	2006	Wenziker K.K											
WQ105	Monitoring and reporting associated with Ministerial Approval Statement 731 for Hamersley Iron Pty Ltd - Hamersley Iron Dredging Program for the Dampier Port Upgrade	2006												
WQ155	Dampier Marine Service Facility: Marine Sediment and Water Monitoring Results May 2006 [Associated with MAS535]	2006	Worley Astron	1	1									
WQ181	Pluto LNG Development Marine Baseline Studies: Initial Sediment Characteristics [Mscience report MSA61R3. Associated with MAS757]	2006	Mscience	1		?								
WQ185	Cape Lambert Upgrade Sampling and Analysis Plan Implementation Report Rev 1 20 January 2006. Prepared for the Robe River Iron Associates.	2006	SKM	1										
WQ033	Dredging Program for the Cape Lambert Port Upgrade - 85 Mtpa, Monthly Marine Water Quality Report - August, Rev 1, 28 September 2007 [Series of monthly reports associated with condition 8-3 MAS743]	2007	SKM	1		1	1							
WQ035	Dredging program for the Cape Lambert Port Upgrade - 85 mtpa Dredging and spoil disposal management plan:- environmental management plan [MAS743]	2007	SKM	1										
WQ055	Dampier Port Upgrade Phase B Dredging Program 2006/07. Monthly Marine Monitoring Reports 1-12(?) [Associated with MAS731. This record also includes 'Baseline Water Quality Monitoring Report. Dampier Port Upgrade Dredging Program 2006/7. Rev 02. 8 January 2007' (SKM, 2007); 'Dampier Port Upgrade Phase B Dredging Program 2006/07. Final Marine Monitoring Report. 27 March 2008 - Rev 5' (SKM, 2008); 'Dampier Port Upgrade Phase B Dredging Program 2006/07. Final Report Adressing Ministerial Statement 731, Condition 8-1. Rev 2. 16 July 2008' (SKM, 2008)]	2007	SKM	1		1								

Appendix 2 Table 7 Identified and prioritised datasets for water quality in the study area ordered by year of publication

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Appendix 2 Table 7 Identified and prioritised datasets for water quality in the study area ordered by year of publication

WQ015	Dampier Port Authority: Marine Environmental Modelling [Final Report, 17 December 2009, Appendix 13, Dampier Marine Services Facility Assessment on Proponent Information. Associated with MAS 868]	2009	Asia Pacific Applied Science Solutions	1			1							
WQ016	Dampier Marine Service Facility: Water Quality Impacts of the Pluto Program in an Area of Intensive Dredging [Mscience Report MSA142R2, Appendix 8, Dampier Marine Services Facility Assessment on Proponent Information. Worley Parsons report to Dampier Port Authority 2011. Associated with MAS 868]	2009	MScience	1		1	1							
WQ017	Dampier Marine Services Facility Benthic Habitat Losses within Dampier Archipelago and Implications of this Project [WorleyParsons Report 301012-01121, Appendix 15, Dampier Marine Services Facility Assessment on Proponent Information. Associated with MAS 868]	2009	Worley Parsons											
WQ031	Cape Lambert Port B Development public environmental review and draft public environmental report [Associated with MAS840, EPBC report number 2008/4032]	2009	SKM	1		1	1							
WQ032	Cape Lambert Port B Marine Water Quality Baseline Monitoring Report Revision 1, 28 July 2009 [Assosiated with MAS840]	2009	SKM	1		1	1							
WQ042	Dampier Port Wharf Construction: Water Quality Descriptors [M-Science Report MSA142R1, associated with MAS868]	2009	M-Science	1										
WQ095	Cape Preston Iron Ore Project Project Environmental Management Plan	2009	Mineraology											
WQ111	Monitoring and reports associated with Ministerial Approval Statement 822 for Mineralogy Pty Ltd - Balmoral South Iron Ore Project, Cape Preston, Shire of Roebourne	2009												
WQ131	Pluto LNG Development: Dredging and Spoil Management Plan/Dredge Impact Management Plan (Rev 9, July 2009, SKM)	2009	SKM											
WQ159	Burrup Peninsula Industrial Water Supply Marine Outlet Operational Monitoring 2008 [Associated with MAS567 and 594]	2009	AECOM	1										
WQ001	Anketell Point Port Marine Benthic Habitat Assessment [Appendix 1, Supporting study 7.5, Anketell Point Port Development Proposal Public Environmental Review/draft Public Environmental Report. Report prepared for API Management Pty Ltd. Associated with MAS881]	2010	AECOM											
WQ002	Anketell Point Port Development Proposal PER/draft PER	2010	API	1										
WQ003	Anketell Point Port Development Proposal PER/draft PER; Part 3 Marine Environemental Impact Assessment Section 9.	2010	API	1						1				1
WQ005	Anketell Point Port Development Proposal PER/draft Part 3 Marine Environemental Impact Assessment	2010	API	1							1	1		
WQ006	API West Pilbara Iron Ore Project - Stage 1 Desalination Discharge Management Plan	2010	API	1					1	1				
WQ007	API West Pilbara Iron Ore Project - Stage 1 Sediment Quality Management Plan	2010	API		1									
WQ008	API West Pilbara Iron Ore Project - Stage 1 Dredge Environmental Management Plan	2010	API	1										
WQ041	Baseline Water Quality and Sedimentation Assessment [Appendix 1, Supporting study 7.3, Anketell Point Port Development Proposal Public Environmental Review/draft Public Environmental Report. Report prepared for API Management Pty Ltd. Associated with MAS881]	2010	AECOM	1		1	1							
WQ052	Marine Water Quality Report Wet and Dry Seasons 2010 [Associated with MAS 535]	2010	AECOM	1						1				
WQ112	Environmental Review/draft Public Environment Report. Associated with Ministerial Approval Statement 881	2010	API											
WQ113	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Desalination Discharge Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	2010	API											
WQ114	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Dredge Environmental Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	2010	API											
WQ138	Report on 'Whole of Port Oil Spill Risk Assessment and Response Capability Review'	2010	DPA?						1	1	1	1	1	
WQ146	Pluto LNG Project: An Evaluation Of Dredging Impacts on Water Quality - November 2007 to Febuary 2010 [M-science Report Number MSA145R2 - Associated with MAS757]	2010	M-Science	1					1	1				



Appendix 2 Table 7 Identified and prioritised datasets for water quality in the study area ordered by year of publication

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Appendix 2 Table 7 Identified and prioritised datasets for water quality in the study area ordered by year of publication

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## Appendix 2 Key Performance Indicator datasets

*Appendix 2 Table 8 Identified and prioritised datasets for non-KPI assets in the study area ordered by year of publication*

Appendix 2 Table 8 Identified and prioritised datasets for non-KPI assets in the study area ordered by year of publication

ID	Study/Dataset	Location	Publication Year	Author	Related Asset
XKPI001	Assessing the effectiveness of sanctuary zones in the proposed Dampier Archipelago Marine Park : data collected during the 2007 survey	Dampier Archipelago	2007	Armstrong SJ	Macroalgal and Seagrass communities
XKPI002	Cape Lambert Port B Development, Benthic Primary Producer Habitat (BPPH) monitoring report (subtidal) (for Rio Tinto Iron Ore) [Cape Lambert Port B, Pilbara Iron Ore Pty Limited : report and recommendations of the Environmental Protection	Cape Lambert	2009	SKM	Macroalgal and Seagrass communities
XKPI003	A general description of the subtidal habitats of the Dampier Archipelago, Western Australia [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier	Dampier Archipelago	2004	Morrison PF (SKM / WAM)	Macroalgal and Seagrass communities
XKPI004	Marine benthic flora of the Dampier Archipelago, Western Australia [In: A Report on the Results of the Western Australian Museum/Woodside Energy Ltd. Partnership to explore the Marine Biodiversity of the Dampier Archipelago Western Australia	Dampier Archipelago	2004	Huisman JM (WAM)	Macroalgal and Seagrass communities
XKPI005	Background quality of the marine sediments of the Pilbara coast. Marine Technical Series Report MTR 1	Inner Archipelago (including in proposed marine park) and DPA waters	2006	DEC	sediment quality
XKPI006	Comparison of the Dampier Port Fringing Reef Benthic Community with Nearby Reef Areas [Report to the Dampier Port Authority] [Macrogalgae and seagrass communities]	Cape Preston - Cape Lambert	2009	Worley Parsons	Macroalgal and Seagrass communities
XKPI007	Cape Lambert Benthic Habitat Mapping: benthic marine habitats at Cape Lambert West, Bezout, Dixon and Delambre Islands. Supporting Document 7.4, Appendix 1, Anketell Point Port Development Proposal Public Environmental	Cape Lambert - Dixon Island, plus Bezout and Delambre	2008	M-Science	Macroalgal and Seagrass communities
XKPI008	Anketell Point Port Benthic Primary Producers. Supporting document 7.6, Appendix 1 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Cape Lambert - Dixon Island, plus Bezout and Delambre	2010	AECOM	Macroalgal and Seagrass communities
XKPI009	Migratory Wader Assessment Report. Supporting document 13.2, Appendix 1 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Eastern onshore part of focus area including Clearville, Dixon Island, Bouger Channel and	2010	AECOM	Seabirds
XKPI010	Field Report : A Description of Humpback Whale and other Mega fauna Distribution and Abundance in the Western Pilbara Using Aerial Surveys - 2009/2010. Supporting document 9.1, Appendix 1 Anketell Point Port Development Proposal Public	West Pilbra	2010	Jenner C and Jenner M	Marine mammals (Cetaceans)
XKPI011	Cape Lambert Benthic Habitat Mapping: benthic marine habitats at Cape Lambert West, Bezout, Dixon and Delambre Islands. Supporting Document 7.4, Appendix 1, Anketell Point Port Development Proposal Public Environmental	Cape Lambert - Dixon Island, plus Bezout and Delambre	2008	M-Science	Macroalgal and Seagrass communities
XKPI012	Migratory Wader Assessment Report. Supporting document 13.5, Appendix 2 Anketell Point Port Development Proposal Public Environmental Review/Final Public Environment Report	Eastern onshore part of focus area including Clearville, Dixon Island, Bouger Channel and	2011	AECOM	Seabirds
XKPI013	Field Report : A Description of Humpback Whale Behaviour Patterns in Nickol Bay Western Australia Using Vessel Based Surveys. Supporting document 9.6, Appendix 2 Anketell Point Port Development Proposal Public Environmental	Nikol Bay	2011	Jenner C and Jenner M	Marine mammals (Cetaceans)
XKPI014	API West Pilbara Iron Ore Project - Stage 1 Bouger Passage Reef Habitat Assessment. Supporting document 7.8, Appendix 2 Anketell Point Port Development Proposal Public Environmental Review/Final Public Environment Report	Bouger Passage	2011	API	Macroalgal and Seagrass communities
XKPI015	Anketell Point Port Development Proposal PER/draft PER; aerial survey from study 9.1	Anketell Point	2010	AECOM	Marine mammals (Cetaceans)
XKPI016	Anketell Point Port Development Proposal PER/draft PER; PART 3 MARINE ENVIRONMENTAL IMPACT ASSESSMENT   SECTION 9 MARINE FAUNA	Anketell Point	2010	AECOM	Marine mammals (Cetaceans)
XKPI017	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Marine Fauna Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Damiper Archipelago	2010	API	Marine mammals (Cetaceans)
XKPI018	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Marine Fauna Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Anketell Point	2010	Jenner C and Jenner M	Marine mammals (Cetaceans)
XKPI019	West Pilbara Iron Ore Project Stage 1 Anketell Point Port Development Proposal	Anketell Point	2010	AECOM	Marine mammals (Cetaceans)
XKPI020	Cape Lambert Port B Development public environmental review and draft public enviromental report	Cape Lambert	2009	SKM/RioTinto	Marine mammals (Cetaceans)
XKPI021	Dampier Archipelago/Cape Perston regional perspectives	Cape Preseton	2000	Osbourne,S Bancroft.K	Marine mammals (Cetaceans)
XKPI022	Status and distribution of dugongd in western australia	North West Shelf	1981	Blackman,D.	Marine mammals (Cetaceans)
XKPI023	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Marine Fauna Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Anketell Point	2010	Jenner C and Jenner M	Marine mammals (Cetaceans)
XKPI024	marine sediment condition monitoring	Dampier Archipelago	2010	AECOM	sediment quality
XKPI025	marine sediment quality investigation novvermber 2009- december 2010	Dampier Archipelago	2009-2010	AECOM	sediment quality
XKPI026	Damp Marine Service facility- MarineSediment monitoring.	Dampier Archipelago	2007	Memaid-marine	sediment quality



Appendix 2 Table 8 Identified and prioritised datasets for non-KPI assets in the study area ordered by year of publication

XKPI027	Damp Marine Service facility- MarineSediment monitoring.	Dampier Archipelago	2010	AECOM	sediment quality
XKPI028	Damp Marine Service facility- MarineSediment monitoring.: AECOM_Meusell_MermaidMarine_SedimentQualityReport2007	Dampier Archipelago	2007	AECOM	sediment quality
XKPI029	DPA annual Report 2004-2011	Dampier Archipelago	2004-2011	DPA	Iron/Mineral Export
XKPI030	Independent Fauna Observer Final Report for the Pluto LNG Dredging Project IFO Report 2007-2010	Dampier Archipelago	2010	Blue Planet Marine	Marine mammals (Cetaceans)
XKPI031	Monitoring of pipe soil disposal	Dampier Archipelago	1982	TD Meager and Associates	sediment quality
XKPI032	Environmental monitoring programme conducted in Mermaid Sound for Woodside Offshore Petroleum Pty Ltd : interim report	Dampier Archipelago	1982	TD Meager and Associates	sediment quality
XKPI033	Dampier port authority management plan	North West Shelf	1994	Bowman Bishaw Gorham	
XKPI034	Group 4 humpback whale calving ground and population monitoring programme	North West Shelf	1995	Jenner, K.C.S	Marine mammals (Cetaceans)
XKPI035	Humpback Highway	North West Shelf	1998	Jenner,M-N	Marine mammals (Cetaceans)
XKPI036	marine protected areas and dugong conservation along australia indian ocean coast	North West Shelf	1998	Preen, A.	Marine mammals (Dugongs)
XKPI037	Dugongs in the northern waters of western australia	North West Shelf	1986	Price, R.I.T	Marine mammals (Dugongs)
XKPI038	A preliminary population estimate of the group 4 breeding stock of humpback whales of western australia	North West Shelf	1994	Jenner,K.C.S	Marine mammals (Cetaceans)
XKPI039	Geographical and temporal movements of humpback whales in western australia	North West Shelf	2001	Jenner,K.C.S	Marine mammals (Cetaceans)
XKPI040	Vertebrate fauna study of Burrup Peninsula for woodside petroleum	North West Shelf	1979	Tingay	Seabirds
XKPI041	Fauna assessment of service corridors on the burruo peninsula	North West Shelf	2002	Biostat	Seabirds
XKPI042	Evaluation of the effectiveness of reducing dolphin catches with pingers and exclusion grids in the pilbara trawl fishery	North West Shelf	2008	Stephenson, P.C	Marine mammals (Cetaceans)
XKPI043	Evaluation of exclusion grids to reduce the cathc of dolphins, turtles, sharks,and rays in the pilbara trawl fishery	North West Shelf	2008	Stephenson, P.C	Marine mammals (Cetaceans)
XKPI044	Aerial survey of th distribution and abundance of dugongs and sassociated macrovertebrate fauna- pilbra coast/offshore region	North West Shelf	No date	DEC	Marine mammals (Dugongs)
XKPI045	Status and distribution of dugons in western australia	North West Shelf	No date	DEC	Marine mammals (Dugongs)
XKPI046	The distribution and abundance of dugongs and other megavertebrates in western australia coastal waters	North West Shelf	No date	DEC	Marine mammals (Dugongs)
XKPI047	Seismic surveys and humpbackwhales	North West Shelf	1997	Anon	Marine mammals (Cetaceans)
XKPI048	Aerial Observations on the humpback whale (Megaptera nodosa) with notes on other species	North West Shelf	1953	Chittleborough, R.G	Marine mammals (Cetaceans)
XKPI049	Dynamics of two population of the humpback whale Megaptera novaeangliae	North West Shelf	1965	Chittleborough, R.G	Marine mammals (Cetaceans)
XKPI050	Dampier archipelago humpback whale project western australia	North West Shelf	1991	Jenner, K.C.S et al	Marine mammals (Cetaceans)
XKPI051	The response of humpback whales to offchsore seismic survey noise; preliminaray results of oservation about working sismic vessel and experimental exposures.	North West Shelf	1998	McCauley et al	Marine mammals (Cetaceans)
XKPI052	Aerial survey of the distribution and abundance of dugongs and associated macrovertebrate fauna;	North West Shelf	2001	Prince, R. I. T	Marine mammals (Dugongs)
XKPI053	Vessel Collision with whales; the probability of lethal injury based on vessel speed	North West Shelf	2007	Vanderlaan, A.S	Marine mammals (Cetaceans)
XKPI054	Terrestrial Fauna of the Burrup Peninsula, Appendix C, Burrup Peninsula Desalinated Water and Seawater Supplies Project, Environmental Protection Statement, Environmental Impact Identification and Management	Burrup Peninsula	2001	Astron Environmental	Seabirds
XKPI055	Water Corporation Dampier Marine Environmental Survey, Appendix D, Burrup Peninsula Desalinated Water and Seawater Supplies Project, Environmental Protection Statement, Environmental Impact Identification and Management	King Bay/Mermaid Sound	2001	Astron Environmental	Rocky shore communities
XKPI056	AUSI Iron Project, Infrastructure Requirements, Consultatiuve Environmental Review, Madigan Point Marine Survey [Marine Survey, Appendix D, In: AUSI Iron Project, Infrastructure Requirements, Consultatiuve Environmental Review March 1996	Cape La,bert / Madigan Point	1996	LeProvost Dames & Moore	Macroalgal and Seagrass communities

Appendix 2 Table 8 Identified and prioritised datasets for non-KPI assets in the study area ordered by year of publication

XKPI057	North West Shelf Venture Additional Liquefied Natural Gas (LNG) Facilities Public Environmental Review (WA) and Public Environmental Report (Commonwealth)	Burrup Peninsula	1998	Woodside Energy Limited	Seabirds
XKPI058	The Burrup Peninsula and Dampier Archipelago, Western Australia: marine an introduction to the history of its discovery and study, habitats and their flora and fauna [In: A Report on the Results of the Western Australian Museum/Woodside Energy	Watering Cove	2004	Diana S. Jones	Rocky shore communities
XKPI059	Notes on birds breeding in Dampier Archipelago, NW coast of Australia		1919	Whitelock FL	Seabirds
XKPI060	Marine benthic flora of the Dampier Archipelago, Western Australia [In: Proceedings of the twelfth International Marine Biological Workshop : the marine flora and fauna of Dampier, Western Australia : held in Dampier from 24 July to 11 August		2003	Huisman JM and Borowitzka MA	Macroalgal and Seagrass communities
XKPI061	Woodside ChEMMS monitoring program		1985-		Rocky shore communities
XKPI062	Environmental Management Plan, monitoring program and compliance reports associated with Ministerial Approval Statement 594 for Water Corporation - Desalinated Water and Seawater Supplies Project Burrup Peninsular, Shire of				sediment quality
XKPI063	Management plans, surveys, monitoring and compliance reports associated with Ministerial Approval Statement 868 for DPA - Dampier Marine Services Facility		2011		Macroalgal and Seagrass communities
XKPI064	Environmental Management Programme, monitoring and compliance reporting associated with Ministerial Approval Statement 410 for Australian United Steel Industry Pty Ltd	Cape Lambert	1996		sediment quality
XKPI065	Monitoring program and compliance reporting associated with Ministerial 116 for Dampier Solar Salt Field Enhancement	Nickol Bay/Creek/River	1990		geomorphology
XKPI066	Monitoring program and compliance reporting associated with Ministerial 116 for Dampier Solar Salt Field Enhancement	Nickol Bay/Creek/River	1990		Seabirds
XKPI067	Monitoring and reporting associated with Ministerial Approval Statement 731 for Hamersley Iron Pty Ltd - Hamersley Iron Dredging Program for the Dampier Port Upgrade	Mermaid Sound	2006		Macroalgal and Seagrass communities
XKPI068	Marine Management program, monitoring and reporting associated with Ministerial Approval Statement 702 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to a Throughput Capacity of 120 million Tonnes Per Annum	Mermaid Sound	2005		sediment quality
XKPI069	Marine Management program, monitoring and reporting associated with Ministerial Approval Statement 702 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to a Throughput Capacity of 120 million Tonnes Per Annum	Mermaid Sound	2005		Macroalgal and Seagrass communities
XKPI070	Monitoring and reporting associated with Ministerial Approval Statement 644 for Hamersley Iron Pty Ltd - Hamersley Iron Dredging Program for the Dampier Port Upgrade	Mermaid Sound	2003		Macroalgal and Seagrass communities
XKPI071	Monitoring and reporting associated with Ministerial Approval Statement 638 for Hamersley Iron Pty Ltd - Hamersley Iron Dampier Port Upgrade to 95 MTPA Capacity	Mermaid Sound	2003		Macroalgal and Seagrass communities
XKPI072	Management plans, monitoring and reporting associated with Ministerial Approval Statement 535 for Mermaid Marine Australia Pty Ltd - Upgrade of Marine Services, King Bay, Dampier	King Bay	2000		sediment quality
XKPI073	Surveys, monitoring and reporting associated with Ministerial Approval Statement 635 for Mineralogy Pty Ltd - Iron Ore Mine, Downstream Processing (Direct Produced and Hot-Briquetted Iron) and Port Construction, Cape Preston, Pilbara	Cape Preston	2003		Macroalgal and Seagrass communities
XKPI074	Surveys, monitoring and reporting associated with Ministerial Approval Statement 635 for Mineralogy Pty Ltd - Iron Ore Mine, Downstream Processing (Direct Produced and Hot-Briquetted Iron) and Port Construction, Cape Preston, Pilbara	Cape Preston	2003		sediment quality
XKPI075	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Coastal Habitat Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Eastern onshore part of focus area including Clearville, Dixon Island, Bouger Channel and	2010	AECOM	geomorphology
XKPI076	West Pilbara Iron Ore Project Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report. Associated with Ministerial Approval Statement 881	Eastern part of the focus area	2010	API	Marine mammals (Cetaceans)
XKPI077	West Pilbara Iron Ore Project Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report. Associated with Ministerial Approval Statement 881	Eastern part of the focus area	2010	API	Macroalgal and Seagrass communities
XKPI078	West Pilbara Iron Ore Project Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report. Associated with Ministerial Approval Statement 881	Eastern part of the focus area	2010	API	sediment quality
XKPI079	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Marine Fauna Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Eastern part of the focus area	2010	API	Marine mammals (Cetaceans)
XKPI080	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Marine Fauna Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Eastern part of the focus area	2010	API	Marine mammals (Dugongs)
XKPI081	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Sediment Quality Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Eastern part of the focus area	2010	API	sediment quality
XKPI082	Cape Lambert Port B Development, baseline intertidal report (for Rio Tinto Iron Ore) [Cape Lambert Port B, Pilbara Iron Ore Pty Limited : report and recommendations of the Environmental Protection Authority]		2009	SKM	Rocky shore communities
XKPI083	Benthic Habitat Report: Dampier Marine Service Facility [Report to the Dampier Port Authority]	Mermaid Sound	2009	Worley Parsons	Macroalgal and Seagrass communities
XKPI084	Cape Lambert Port B Development, Cetacean management plan (for Rio Tinto) [Cape Lambert Port B, Pilbara Iron Ore Pty Limited : report and recommendations of the Environmental Protection Authority]		2009	SKM	Marine mammals (Cetaceans)
XKPI085	Marine Sediment Monitoring Programme plan/reports/data/data summaries [In: Outline of Environmental Management Plans, Appendix J, Burrup Peninsula Desalinated Water and Seawater Supplies Project, Environmental Protection	King Bay/Mermaid Sound	2001 - present	Water Corporation?	sediment quality

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XKPI086	Woodside Offshore Petroleum ChEMMS monitoring program. Data and reports.	Mermaid Sound plus reference sites	1983-?		Rocky shore communities
XKPI087	Burrup Peninsula Fauna Study. Unpublished report for Woodside Offshore Petroleum	Burrup Peninsula	1993	Dinara Pty Ltd	Seabirds
XKPI088	Terrestrial Fauna Monitoring Programme 1997	Burrup Peninsula	1997	Woodside Offshore Petroleum	Seabirds
XKPI089	Productivity of benthic turf algae in the Dampier Archipelago, Western Australia [In: Australian Coral Reef Society, 83rd annual conference, Fremantle, Western Australia, 9- 11th October, 2007 : east meets west: science and management of		2007	Borowitzka M and Mercer J	Macroalgal and Seagrass communities
XKPI090	Marine plants of the rocky shores of the Dampier Archipelago [In: Report on the marine fauna and flora of the Dampier Archipelago : unpublished reports submitted to Meagher and LeProvost]		1978	Slack-Smith SM (WAM)	Macroalgal and Seagrass communities
XKPI091	Algae of the Dampier Archipelago and Montebello		2003	Huisman and Borowitzka	Macroalgal and Seagrass communities
XKPI092	Chemical and Ecological Monitoring of Mermaid Sound June 1991 Survey First Annual Report		1991	LeProvost Environmental Consultants	intertidal rocky shore communities; sediment quality
XKPI093	1994 LPG Jetty and Ship-Turning Basin Dredging Programme Marine Monitoring Programme. Report prepared for Woodside.		1995	LeProvost Dames and Moore	sediment quality
XKPI094	LNG Shipping Channel - Spoil Dumping Permit Mermaid Sound Western Australia Environmental Monitoring Programme to December 1989. Report prepared for Woodside.		1989	LeProvost, Semenuik and Chalmer	sediment quality
XKPI095	Maintenance Dredging 1989 Mermaid Sound Western Australia - State Environmental Monitoring Programme. Report no R292, prepared for Woodside Offshore Petroleum Pty Ltd		1990	LeProvost, Semenuik and Chalmer	sediment quality
XKPI096	Environmental Monitoring of Pipeline Installation in Mermaid Sound. Report prepared by Meagher and Associates for Woodside.		1984	Meagher TD and Associates	sediment quality
XKPI097	Pluto LNG Development: Baseline Studies for Corals and Sediments. Report prepared for Sinclair Knight Merz		2006	M-Science	sediment quality
XKPI098	Review of Coral Surveillance Monitoring for the ChEMMS Programme. Report prepared for Woodside.		2003	URS Australia	Rocky shore communities
XKPI099	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside Energy Limited.		2004	URS Australia	Rocky shore communities
XKPI100	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2005. Report Prepared for Woodside.		2005	URS Australia	Rocky shore communities
XKPI101	Pluto LNG Development: Dredging and Spoil Management Plan/Dredge Impact Management Plan (Rev 8, 2008, SKM)		2008	SKM	sediment quality
XKPI102	"A final report summarising the results, analyses and interpretation of the particle size distribution monitoring will be provided		?	?	geomorphology
XKPI103	Pluto LNG Project Baseline Marine Habitat Survey Report Prepared in Accordance with Requirements of Ministerial Condition 6-11 of the Pluto Ministerial Statement		2008	SKM	Macroalgal and Seagrass communities
XKPI104	Reports associated with post dredging benthic habitat Surveys required under condition 850:M6.12-14		2010	?	Macroalgal and Seagrass communities
XKPI105	Marine Monitoring of Dredging Operations in Mermaid Sound, WA - 1996. Internal report prepared for Woodside Offshore		1996	ECOS Consulting	Rocky shore communities
XKPI106	Investigative Sampling at King Bay		1998	Astron Engineering	sediment quality
XKPI107	Water Corporation Dampier Marine Environmental Survey		2001	IRC Environment	sediment quality
XKPI108	Dampier Inner Harbour Marine Habitats Survey." Unpublished Report to Hamersley Iron by Environmental Contracting Services, Perth WA.		1995	ECS	Macroalgal and Seagrass communities
XKPI109	Dampier Marine Environmental Study - Review & Survey Report.", Unpublished report by IRC Environment for Hamersley Iron Pty Limited, Perth, WA.		2001	IRC	Macroalgal and Seagrass communities
XKPI110	Hamersley Iron Maintenance Dredging, Dampier Shipping Channel, Environmental Monitoring Programme, Final report - November 1990.", Unpublished Report No. R 322, November 1990 to Hamersley Iron Pty Ltd, Perth WA.		1990	LeProvost Environmental Consultants	Macroalgal and Seagrass communities
XKPI111	Reports associated with monitoring programs 1, 2, 5, 6, 7 and 8 in the Dampier Operations Marine Management Program		Annual report?	?	sediment quality
XKPI112	Anketell Point Port Sediment Sampling and Analysis Implementation Report [Appendix 1, Supporting study10.1, Anketell Point Port Development Proposal Public Environmental Review/draft Public Environmental Report. Report prepared for API	Anketell Point - offshore from Delambre Island	2010	Oceanica	Sediment Quality
XKPI113	API West Pilbara Iron Ore Project - Stage 1. Addendum to SAP Implementation Report [Appendix 1, Supporting study10.2, Anketell Point Port Development Proposal Public Environmental Review/draft Public Environmental Report. Report prepared for API Management Pty Ltd. Associated with MAS881]	Anketell Point - offshore from Delambre Island	2010	API	Sediment Quality
XKPI114	Final Report' referred to in section 7.1.7 of the 'Dampier Port Dredging: Dredging and Dredge Spoil Disposal Management Plan' (SKM, 2006. For Hamersley Iron) [Associated with MAS 731]	Probably concentrates on inner Mermaid Sound near active port areas, however reference sittings are likely to be in, or very close to proposed marine park	?	? May be more than one, likely to be Environmental consultant, SKM or MScience?	Sediment quality

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XKPI115	Reports associated with TBT and imposex monitoring referred to in section 6.8 of the 'Dampier Port Dredging: Dredging and Dredge Spoil Disposal Management Plan' (SKM, 2006. For Hamersley Iron) [Associated with MAS 731]	Probably concentrates on inner Mermaid Sound near active port areas, however reference sittings are likely to be in, or very close to proposed marine park	?	? May be more than one, likely to be Environmental consultant, SKM or MScience?	Sediment quality
XKPI116	Draft Environmental Impact Statement and Environmental Review and Management Programme	Dampier Archipelago	1979	Woodside Petroleum Development Pty. Ltd.	Macroalgal and Seagrass communities
XKPI117	Maitland heavy industrial estate, Karratha Landcorp / Department of Resources Development : advice to the Minister for the Environment from the Environmental Protection Authority under Section 16(e) of the Environmental Protection Act 1986	Maitland	1997	EPA	Marine mammals (Cetaceans)
XKPI118	Second offshore trunkline and Domgas debottlenecking, North West Shelf, Woodside Offshore Petroleum Pty Ltd : report and recommendations of the Environmental Protection Authority	Dampier Archipelago	1998	EPA	Marine mammals (Cetaceans)
XKPI119	Developing a broadscale habitat map for the Montebello/Barrow islands and the Dampier Archipelago/Cape Preston regions : Marine Reserve Implementation, Pilbara : a collaborative project between CALM Marine Conservation Branch and the Pilbara Regional Office	Dampier Archipelago and Montebello Barrow Islands	2000	Bancroft KP, Sheridan MW and Davidson JA (CALM)	Macroalgal and Seagrass communities
XKPI120	Dampier archipelago nature reserves management plan 1990 - 2000	Dampier Archipelago	1990	DoCLM	Rocky shore communities
XKPI121	Macroalgae biomass and distribution in the dampier archipelago during the 1980s	Dampier Archipelago	2009	Chiffings personal communication	Macroalgal and Seagrass communities
XKPI122	Seagrasses of the port of dampier; distribution, abundance and morphology	Dampier Archipelago	2006	Bertolino. C.	Macroalgal and Seagrass communities
XKPI123	Introduction to the marine environment of Dampier, Western Australia [In: The Marine Flora and Fauna of Dampier, Western Australia]	Dampier Archipelago	2003	Fred E. Wells and Diana I. Walker	Marine mammals (Cetaceans)
XKPI124	Assets of the marine and coastal environment of the Dampier Archipelago, Western Australia : a register, July 2005	Dampier Archipelago	2005	M-Science	Marine mammals (Cetaceans)
XKPI125	Dampier Marine Services Facility: Benthic Habitat Losses with Dampier Archipelago and Implications of this Project [Appendix 15, Dampier Marine Services Facility Assessment on Proponent Information. 2011, Worley Parsons]	Dampier Archipelago	2009	EPA	Macroalgal and Seagrass communities
XKPI126	Woodside ChEMMS monitoring program		1985-		sediment quality
XKPI127	Independent Fauna Observer Final Report for the Pluto LNG Dredging Project IFO Report 2007-2010	Dampier Archipelago	2010	Blue Planet Marine	Marine mammals (Dugongs)
XKPI128	Anketell Point Port Development Proposal PER/draft PER; aerial survey from study 9.1	Anketell Point	2010	AECOM	Marine mammals (Dugongs)
XKPI129	Anketell Point Port Development Proposal PER/draft PER; PART 3 MARINE ENVIRONMENTAL IMPACT ASSESSMENT   SECTION 9 MARINE FAUNA	Anketell Point	2010	AECOM	Marine mammals (Dugongs)
XKPI130	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Marine Fauna Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Dampier Archipelago	2010	API	Marine mammals (Dugongs)
XKPI131	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Marine Fauna Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Anketell Point	2010	Jenner C and Jenner M	Marine mammals (Dugongs)
XKPI132	West Pilbara Iron Ore Project Stage 1 Anketell Point Port Development Proposal	Anketell Point	2010	AECOM	Marine mammals (Dugongs)
XKPI133	Cape Lambert Port B Development public environmental review and draft public environmental report	Cape Lambert	2009	SKM/RioTinto	Marine mammals (Dugongs)
XKPI134	Dampier Archipelago/Cape Preston regional perspectives	Cape Preston	2000	Osbourne,S Bancroft.K	Marine mammals (Dugongs)
XKPI135	Status and distribution of dugong in western australia	North West Shelf	1981	Blackman,D.	Marine mammals (Dugongs)
XKPI136	Future monitoring associated with API West Pilbara Iron Ore Project - Stage 1 Marine Fauna Management Plan. Appendix 3 Anketell Point Port Development Proposal Public Environmental Review/draft Public Environment Report	Anketell Point	2010	Jenner C and Jenner M	Marine mammals (Dugongs)
XKPI137	Field Report : A Description of Humpback Whale Behaviour Patterns in Nickol Bay Western Australia Using Vessel Based Surveys. Supporting document 9.6, Appendix 2 Anketell Point Port Development Proposal Public Environmental	Nikol Bay	2011	Jenner C and Jenner M	Marine mammals (Dugongs)
XKPI138	Field Report : A Description of Humpback Whale and other Mega fauna Distribution and Abundance in the Western Pilbara Using Aerial Surveys - 2009/2010. Supporting document 9.1, Appendix 1 Anketell Point Port Development Proposal Public	West Pilbra	2010	Jenner C and Jenner M	Marine mammals (Dugongs)
XKPI139	Review of Coral Surveillance Monitoring for the ChEMMS Programme. Report prepared for Woodside.		2003	URS Australia	sediment quality
XKPI140	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2004. Report Prepared for Woodside Energy Limited.		2004	URS Australia	sediment quality
XKPI141	Chemical and Ecological Monitoring of Mermaid Sound Annual Report 2005. Report Prepared for Woodside.		2005	URS Australia	sediment quality
XKPI142	Marine Monitoring of Dredging Operations in Mermaid Sound, WA - 1996. Internal report prepared for Woodside Offshore		1996	ECOS Consulting	sediment quality

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XKPI143	Dampier Marine Environmental Study - Review & Survey Report.", Unpublished report by IRC Environment for Hamersley Iron Pty Limited, Perth, WA.		2001	IRC	sediment quality
XKPI144	Hamersley Iron Maintenance Dredging, Dampier Shipping Channel, Environmental Monitoring Programme, Final report - November 1990.", Unpublished Report No. R 322, November 1990 to Hamersley Iron Pty Ltd, Perth WA.		1990	LeProvost Environmental Consultants	sediment quality
XKPI145	Maitland heavy industrial estate, Karratha Landcorp / Department of Resources Development : advice to the Minister for the Environment from the Environmental Protection Authority under Section 16(e) of the Environmental Protection Act 1986	Maitland	1997	EPA	Marine mammals (Dugongs)
XKPI146	Dampier archipelago nature reserves management plan 1990 - 2000	Dampier Archipelago	1990	DoCLM	Seabirds
XKPI147	Introduction to the marine environment of Dampier, Western Australia [In: The Marine Flora and Fauna of Dampier, Western Australia]	Dampier Archipelago	2003	Fred E. Wells and Diana I. Walker	Macroalgal and Seagrass communities
XKPI148	Assets of the marine and coastal environment of the Dampier Archipelago, Western Australia : a register, July 2005	Dampier Archipelago	2005	M-Science	Macroalgal and Seagrass communities
XKPI149	Introduction to the marine environment of Dampier, Western Australia [In: The Marine Flora and Fauna of Dampier, Western Australia]	Dampier Archipelago	2003	Fred E. Wells and Diana I. Walker	Marine mammals (Dugongs)
XKPI150	Assets of the marine and coastal environment of the Dampier Archipelago, Western Australia : a register, July 2005	Dampier Archipelago	2005	M-Science	Marine mammals (Dugongs)
XKPI151	Review of research and data relevant to the marine and terrestrial environment of Dampier	Dampier Archipelago	2006	Jackson, K. J. , Paling, E. I., Stoddart,	Macroalgal and Seagrass communities
XKPI152	A general description of the subtidal habitats of the Dampier Archipelago, Western Australia	Dampier Archipelago	2004	Morrison, Peter F.	Macroalgal and Seagrass communities
XKPI153	Review of research and data relevant to the marine and terrestrial environment of Dampier	Dampier Archipelago	2006	Jackson, K. J. , Paling, E. I., Stoddart,	Marine mammals (Cetaceans)
XKPI154	Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area.	Dampier Archipelago	2005	DoCLM	Macroalgal and Seagrass communities, cetaceans, dugongs, geomorphology, sediment quality, rocky shore communities, seabirds
XKPI155	Pluto LNG Development, Addendum to public environment report / public environmental review supplement and response to public submissions . [Appendix 6 to Pluto LNG Development, Burrup Peninsula, Woodside Energy Ltd, Report and recommendations of the Environmental Protection Authority]	Dampier Archipelago	2007	Sinclair Knight Merz	macroalgae and seagrass communities
XKPI156	Cape Lambert Port B Development, Cetacean management plan (for Rio Tinto) [Cape Lambert Port B, Pilbara Iron Ore Pty Limited : report and recommendations of the Environmental Protection Authority associated with MAS840]		2011	SKM	Marine mammals (Cetaceans)

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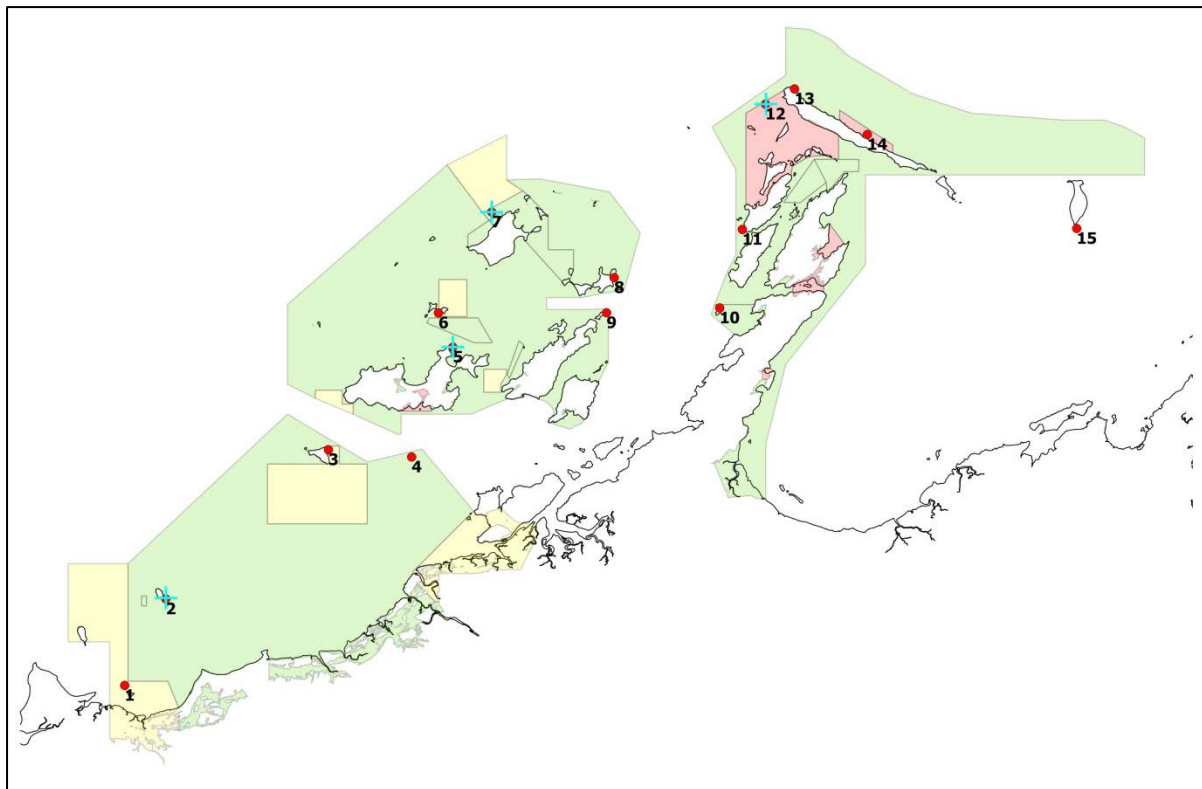
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## Attachment 3



1	Unnamed Is 407	5	Enderby Is.(Temp)	9	High Point	13	Legendre Is. General
2	NE Regnard Is.(Temp)	6	Goodwin Is.	10	Conzinc Is.	14	Legendre Is. Sanctuary
3	Eaglehawk Is.	7	Sailfish (Temp)	11	Gidley Is.	15	Delambre Is.
4	Dockrell Reef	8	Malus Is.	12	Hamersley Shoal (Temp)		

*Locations (red points) of fish and coral monitoring sites in the proposed Dampier Archipelago Marine Park and Regnard Marine Management Area. The location of temperature loggers are marked with blue crosses. Also included is a table listing site names.*