

Wheatstone Project Offset C

Understanding and Managing Critical Habitat for Marine Mammals in the Pilbara

ANNUAL REPORT

2015/2016

August 2016



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Parks and Wildlife



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1 Introduction

Condition 22 of Ministerial Statement 873 for the Wheatstone Development – Gas Processing, Export Facilities and Infrastructure requires the proponent to contribute funding to seven projects. A memorandum of understanding (“MOU”) between Chevron Australia Pty Ltd in its capacity as operator of the Wheatstone Project (“Chevron”) and the State of Western Australia acting through the Chief Executive Officer of the Department of Environment and Conservation, now the Department of Parks and Wildlife (“Parks and Wildlife”), was signed on the 30 April 2012. The MOU consists of funding for two of these projects; Project B – Connectivity and recovery potential of Pilbara marine habitats and associated taxa and Project C – Understanding and managing critical habitat for marine mammals in the Pilbara. As part of the CEO’s obligations outlined in section 3.1 of the MOU, Parks and Wildlife is required to provide Chevron with a Program Annual Report each year of the Program within one month of the Department’s annual report being tabled in Parliament. The Program Annual Report is to include a summary of the following:

- (i) opening balance, income, expenditure and closing balance of the Project Accounts;
- (ii) description of the Program activities undertaken over the last year;
- (iii) results of the Program activities undertaken over the last year; and
- (iv) a summary of the Program activities anticipated to be undertaken in the following year.

This document is the Program Annual Report for Project C for the period 1 July 2015 to 30 June 2016.

The focus of Project C is the “*Identification and improved management of critical habitat for the following threatened marine species: 1) humpback whales; 2) dugong and 3) snubfin dolphins in Pilbara waters*”. There are a number of species of marine mammal that are of State, national and international conservation significance that reside in, or use, the coastal waters of the Pilbara region, e.g. humpback whales, dugong and dolphins. These species may be impacted by industrial development activities, however, currently there is limited information on their abundance, distribution and habitat use throughout the Pilbara. The purpose of this research program is to improve the knowledge base and management of regionally critical habitat for these species, which will rely on a sound understanding of species populations, movement patterns and ecology.

2 Offset C Program Activities 2015/2016

- The science plan for Wheatstone Offset Project C was approved by Parks and Wildlife in September 2014. (The science plan was provided as an attachment to the 2013/2014 annual report and can be provided again, on request, if required.) The plan identifies four areas of research: dolphin ecology and population dynamics, dugong ecology and habitat characterisation, humpback whale critical habitat and spatial risk assessment. A prioritisation process undertaken to develop the plan identified the dolphin research program as a high priority given the lack of knowledge of these species across the Pilbara. Consequently it is the largest research element in the plan, with a multi-year focus and several components to the research. As such, the initial focus in implementation of the science plan has been on the implementation of the dolphin research program.
- The Research Scientist employed in 2013 has continued to lead the implementation of the dolphin research program. More detail on the progress in the dolphin research program is provided below.
- In accordance with the science plan, a second project proposal has been developed and approved to characterise seagrass communities and their relationship to dugong abundance and distribution. This research will commence in 2016/17 in collaboration with several external research organisations. The research will determine seagrass habitat dynamics across the Pilbara and measure how this influences the distribution and habitat use of dugong (Attachment A – full project proposal). External funding will be sought to supplement that available through Wheatstone Offset C to expand the scope and geographic extent of this project.
- Discussions have continued on establishing a framework for the spatial risk assessment project, which will focus on utilising existing datasets of target species such as humpback whales.

Dolphin research program

- Work on the program has focused on dolphin surveys using boat-based and aerial methodologies.
- Field work commenced for the inshore dolphin program in October 2014. Four boat-based surveys have been led by the Research Scientist in the Onslow area between July 2015 and June 2016, bringing the total to six surveys at this site. The same transect lines are surveyed during each two week field trip in the near-shore waters around Onslow and Thevenard Island to determine dolphin density, habitat use and site fidelity using standard mark-recapture photo identification.
- The second of three annual aerial surveys for dolphins in the Pilbara coastal waters was undertaken in May/June 2016. The aerial survey, coordinated by the Research Scientist, involved a team of four observers and a team leader in

the field for a three week period. The survey design was adapted to maximise sightings of target species based on the results from the 2015 aerial survey. The survey was completed successfully in favourable conditions.

Table 1: Offset C Milestones Achieved in 2015/2016

Milestones / Major activities	Timing (by date)	Status (% of work complete)
July 2015 – June 2016		
1. Project planning		
Complete budget and fieldwork planning for 2015/16 financial year	Oct 2015	100
Plan the research program on understanding critical seagrass habitat and the relationship to dugong abundance and distribution in the Pilbara.	Ongoing	75
2. Field program		
Plan for Oct 15 boat survey (incl. FOP)	Aug 2015	100
Oct 2015 boat survey: Survey for dolphin distribution and abundance at key sites in the Pilbara.	Oct 2015	
Plan for May 2016 aerial survey (incl. AOP)	Nov 2015	100
Plan for Mar 2016 boat survey (incl. FOP)	Feb 2016	100
Mar 2016 boat survey: Survey for dolphin distribution and abundance at key sites in the Pilbara.	Mar 2016	100
May 2016 aerial survey: Undertake aerial survey for dolphin distribution and abundance across the Pilbara	Jun 2016	100
June 2016: boat survey: Survey for dolphin distribution and abundance at key sites in the Pilbara.	Jun 2016	100
3. Annual data analysis complete		
Process survey data including photo-identification for all field trips	Ongoing	Up to date with field trips
Analyse photo-identification data	Ongoing	Up to date with field trips
4. Data management		
Ensure all data has metadata attached and, in the interim, stored appropriately	Jun 2016	100
Enter survey data into DoIFIN Database	Ongoing	Up to date with field trips
5. Reporting (i.e. outputs)		
5.1 Science		
Complete metadata report for the Oct 15 boat survey	Nov 2015	100
Complete metadata report for the Mar 16 boat survey	Apr 2016	100
Complete metadata report for the Jun 16 boat survey	Jun 2016	100
Complete metadata report for the Jun 16 aerial survey	Jun 2016	100
Complete an ARAR progress report	Jun 2016	100
5.2 Communication		
Complete project update to the regional Parks and Wildlife office staff	Jun 2016	100
Complete annual report to Chevron	Sep 2015	100
Attend meetings and provide presentations as required to, industry and scientific community	Ongoing	100
5.3 Knowledge Transfer		
Annual data report distributed to the Karratha regional and Exmouth District offices	Jun 2016	100

3 Offset C Program Account 2015/2016

The Wheatstone Offset Project C Program Account was created by Parks and Wildlife (then DEC) in 2012. Through the course of the offset C program Chevron will pay \$3.5M into the account in instalments of \$875,000. The first instalment was paid in May 2012 and the last was received in January 2015. The research program to meet Offset C was initiated with the employment of principal and research scientists in 2013 and this is reflected in the increasing expenditure over time as research projects are progressively implemented.

A summary of account activity for 2015/2016 is outlined in Table 2 with more detailed expenditure provided in Table 3.

Table 2: Offset C Summary of Account Activity 2015/2016

Activity	Opening balance (1 July 2015)	Income (2015/16)	Expenditure (2015/16)	Closing balance (30 June 2016)
	\$2,954,919.65			
Interest		\$62,892.62		
Deposit by Chevron				
Understanding and managing marine mammals			\$492,291.03	
Total	\$2,954,919.65	\$62,892.62	\$492,291.03	\$2,525,521.24

Note that \$52,000 will be recouped in 2016/17 from Pluto offset funding for survey work that has occurred in the Dampier Archipelago area.

Table 3: Offset C Account Expenditure 2015/2016

Parks and Wildlife Budget category	Expense
Operating and travel	\$256,230.71
Plant	\$186.90
Salary and wages (including overheads)	\$235,873.42
TOTAL	\$492,291.03

4 Offset C Planned Activities 2016/2017

In 2016/17, it is anticipated that the following activities will be undertaken by Parks and Wildlife in collaboration with a number of external bodies, as elements of the science plan:

- At least two vessel-based surveys for the dolphin project, estimated to be in September and November 2016 at the Onslow and Dampier areas, respectively;
- At least one aerial survey of dolphin distribution and habitat use across the Pilbara region, with the timing and spatial design to be informed from the results of the previous two surveys;
- Commencement of a two year research project to characterise dugong habitat and map the extent of preferred/optimal habitat across the Pilbara in relation to dugong distribution and movement patterns using a combination of field work, laboratory and desktop analysis; and
- Preparing the annual report to Chevron for Wheatstone Offset C.

Dolphin research operating	\$350,000
Dugong research operating	\$375,000
Salary & wages (including O/H)	\$250,000
TOTAL	\$975,000

Estimated expenditure 2016/17: \$975,000

Table 4: Offset C Proposed Milestones/Major Activities for 2016/2017

Milestones / Major activities	Timing (by date)
July 2016– June 2017	
1. Project planning	
Complete budget and fieldwork planning for 2017/18 financial year	Jan 2017
Plan seagrass/dugong research project	Sep 2016
2. Field program	
Plan for Sep 16 boat-based dolphin survey (incl. FOP)	Aug 2016
Spring 2016 boat-based dolphin survey: habitat use, residency, abundance and distribution.	Sep 2016
Plan for 2017 aerial marine mammal survey (incl. AOP)	Apr 2017
Conduct 2017 aerial survey	TBD
Plan for winter 2017 boat-based dolphin survey (incl. FOP)	May 2017
Winter 2017 boat-based dolphin survey: habitat use, residency, abundance and distribution.	Jun 2017
Seagrass/dugong field work	TBD
3. Annual data analysis complete	
Process boat-based survey data including photo identification	Ongoing
Analyse data for population parameters	Ongoing
Process aerial survey data	Jun 2017
Preliminary analysis of aerial survey data	Jun 2017

<i>Table 4 cont...</i>	
4. Data management	
Ensure all data has metadata attached and, in the interim, stored appropriately	Nov 2017
Enter survey data into DolFIN Database	Ongoing
Complete metadata report for the Nov 16 boat survey	Jun 2017
Complete metadata report for the Apr 17 boat survey	Jun 2017
Complete an ARAR progress report	Jun 2017
Complete project update to the regional Parks and Wildlife office staff	Sep-Nov 2016
Complete annual report to Chevron	Sep 2016
Attend meetings and provide presentations as required to, industry and scientific community	Ongoing
5.3 Knowledge Transfer	
Annual data report distributed to the Karratha regional and Exmouth District offices	Jun 2017

5 Summary

5.1 Outputs and outcomes from 2015/2016

- Four Onslow inshore vessel-based dolphin surveys were completed in winter and spring of 2015 and autumn and winter of 2016. During these surveys, 622km of transect were covered over 53 hours. The dolphin encounter rate was 0.05 dolphins per km or 0.63 dolphins an hour. Thevenard Island was surveyed for 239km or 20hrs with an encounter rate of 0.32 dolphins per km or 3.75 dolphins per hour of survey.
- No snubfin dolphins have been sighted during the dolphin boat-based surveys. This may be because the Pilbara represents the extreme limit of their range, with only a small number of vagrant individuals travelling south from the Kimberley or because residual populations in the Pilbara support extremely low densities.
- An electronic photo-identification catalogue has been compiled which so far includes 79 individually recognisable bottlenose dolphins (31 and 48 at Onslow and Thevenard Island, respectively) and 42 humpback dolphins (18 and 24 at Onslow and Thevenard Island, respectively).
- Site fidelity indices for individual dolphins range from 0-0.4 (where 0 is transient and 1 is resident). This suggests that many individuals are not resident to the Onslow area, with relatively large home ranges of >100km, and the population density in the survey area is low.
- Preliminary analysis was undertaken on the coastal aerial survey flown from west of Karratha to east of Port Hedland and offshore to approximately the 20 metre bathymetry contour, as reported last year. The predominant species recorded were bottlenose dolphins (113 groups), dugongs (63 groups) and humpback dolphins (14 groups). The encounter rate of humpback dolphins was too low to model abundance. The modelled abundance estimate of bottlenose dolphins is 2946 (CI

2028-4278) for a ~20 000km² area. Note this estimate is preliminary and uncorrected for availability bias.

- Results from the 2015 aerial survey were used to redesign the aerial survey for 2016 in an attempt to increase the encounter rate for humpback dolphins. This will improve the chance of being able to model abundance for this species. The second aerial survey was undertaken in May 2016 and included additional transects flown over Exmouth Gulf. Preliminary analysis have found that the predominant species (number of groups encountered given in brackets) recorded in the May 2016 aerial survey were dugongs (163) and bottlenose dolphins (88) with fewer humpback dolphins (46) and snubfin dolphins (2). Dwarf minke (1) and humpback whales (2) were also sighted.

5.2 Summary of activities forecast for 2016/2017

- Annual aerial survey will be undertaken to investigate fine-scale habitat use in areas of high coastal dolphin density (Exmouth Gulf and the Dampier Archipelago).
- Seasonal vessel-based surveys will be expanded to include areas of higher dolphin density in the Dampier Archipelago and Exmouth Gulf starting in November 2016 and continuing in 2017.
- The dugong research program will commence in November 2016 through implementation of a project on the characterisation of dugong habitat as well as dugong distribution and movement patterns in the Pilbara in collaboration with Edith Cowan and Murdoch universities.
- Annual reporting to the Wheatstone Joint Venture Partners will be completed by 1 September 2017.

Appendix 1

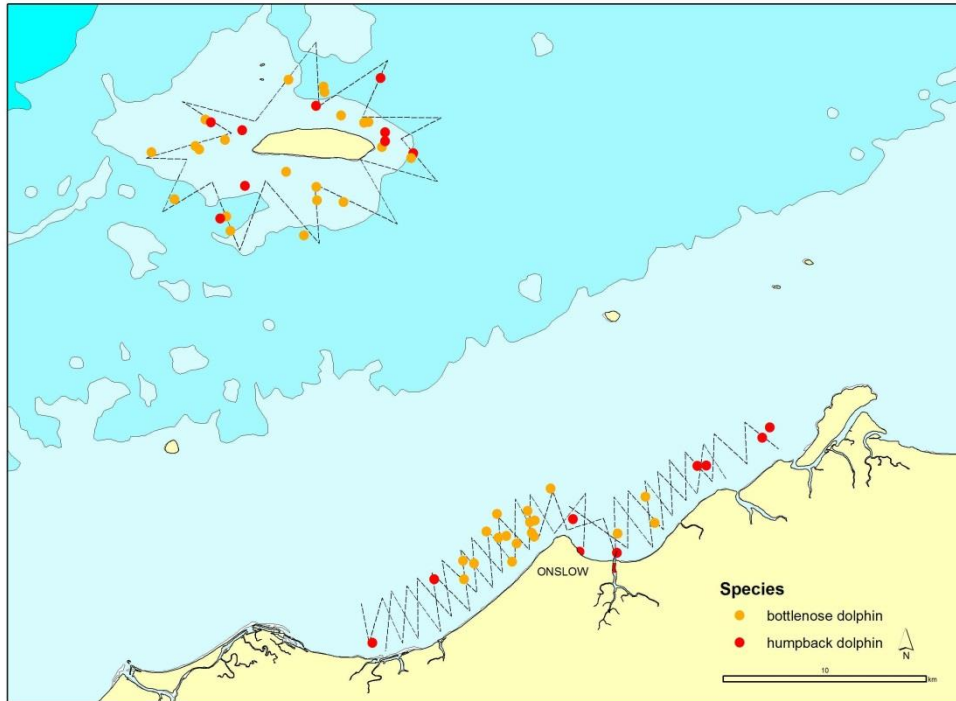


Figure 1 Map of bottlenose and humpback dolphin sightings on coastal transects near Onslow and Thevenard Island from 2014-2016.

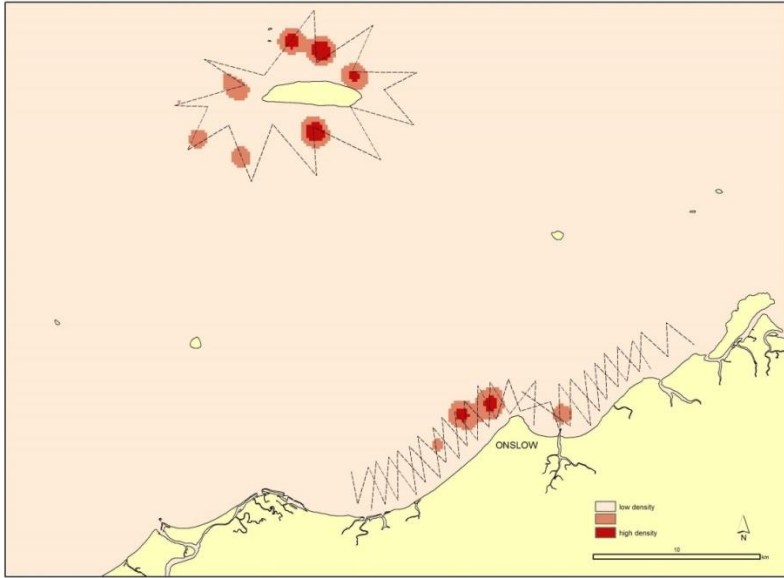


Figure 2 Heatmap showing density of bottlenose dolphins sighted on transects near Onslow and Thevenard Island from 2014-2016.

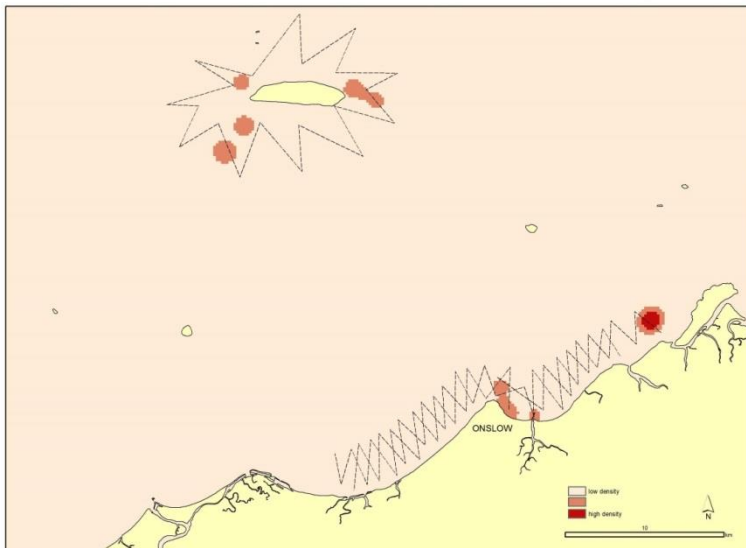


Figure 3 Heatmap showing density of humpback dolphins sighted on transects near Onslow and Thevenard Island from 2014-2016.

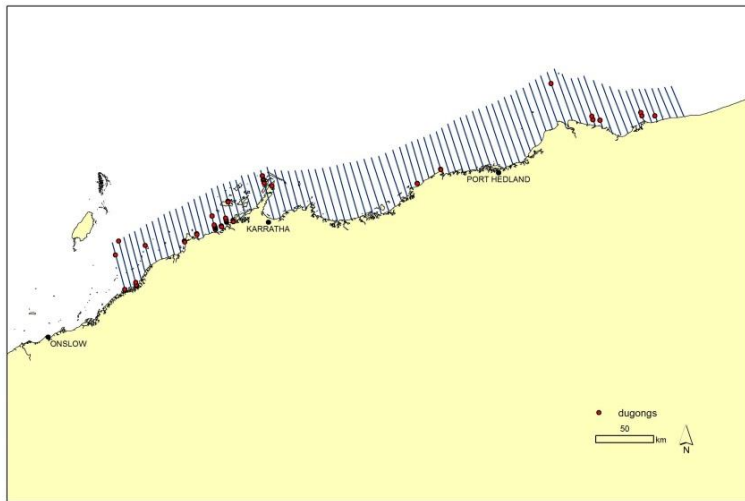


Figure 4 Dugongs sighted on the aerial survey in May-June 2015.

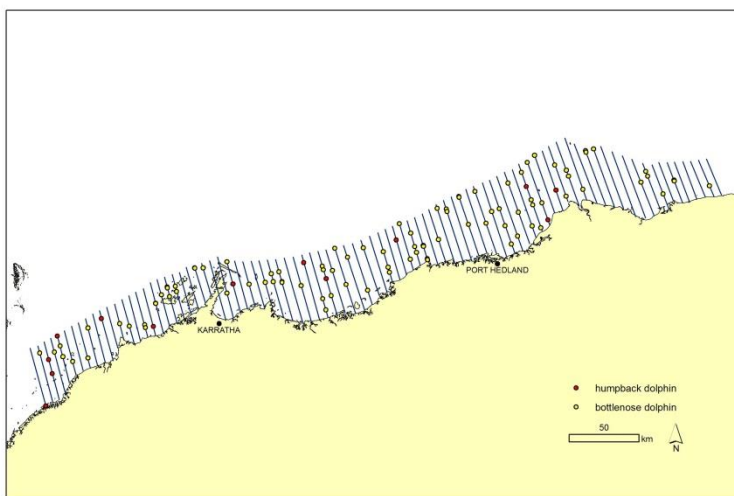


Figure 5 Dolphins sighted on the aerial survey in May-June 2015.

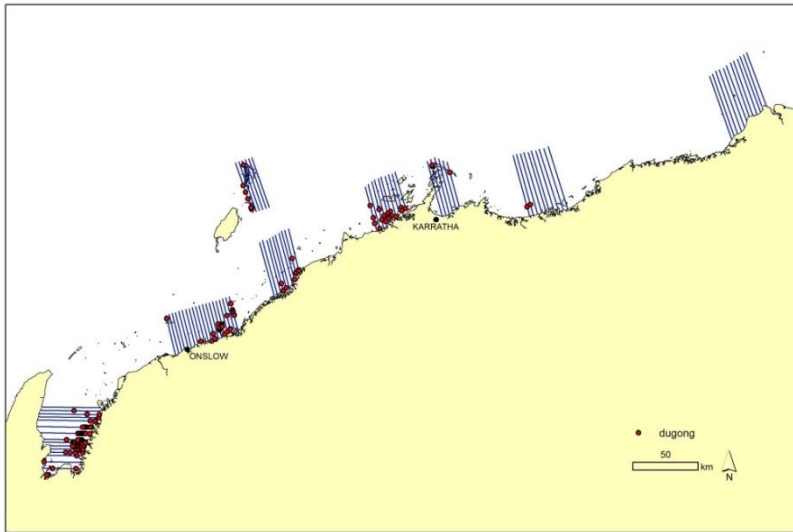


Figure 6 Dugongs sighted on the aerial survey May-June 2016.

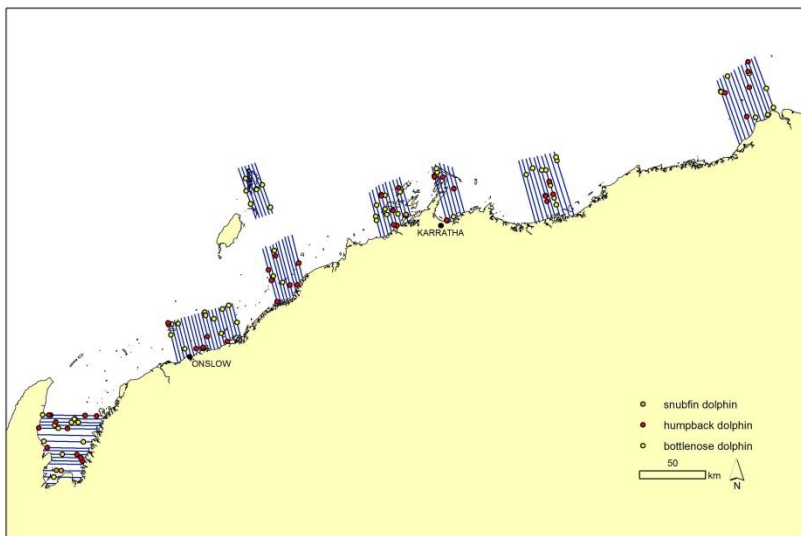


Figure 7 Dolphins sighted on the aerial survey May-June 2016.