

RioTinto

Cape Lambert Port B Development

CETACEAN MANAGEMENT PLAN

- Rev 2
- 21 August 2009



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1. Introduction

1.1. Scope and Role of this Management Plan

The Cape Lambert Port B development will involve a dredging and spoil disposal program and jetty/wharf construction works. The proposed marine works may potentially influence or impact cetaceans that may appear around the Port B development. The aim of this management plan is to mitigate against impacts to cetaceans as a result of the proposed works.

This document addresses environmental management and monitoring requirements for cetaceans during the construction phase of the Port B development.

1.2. Species of Interest

A total of 13 marine mammal species (including 12 cetaceans) listed under the EPBC Act (**Table 1**) have the potential to occur within the waters surrounding the development area (DEWHA 2009). Of these, the humpback (*Megaptera novaeangliae*) whale is listed as threatened, and the blue (*Balaenoptera musculus*) whale is listed as endangered (DEWHA 2009). These two species have special protection under the *Wildlife Conservation Act 1950* (WA) where they are described as ‘rare or likely to become extinct’. The other whale and dolphin species that may be found within the region are listed as migratory and/or marine species under the EPBC Act and are protected as they are regarded as species of national environmental significance (DEWHA 2009).

■ Table 1 Marine mammal species of conservation significance (EPBC Act) found in the Pilbara region

| Scientific Name | Common Name | Status | Type of Presence |
|---|--|---------------------------------|--|
| <i>Balaenoptera musculus</i> | Blue whale | Endangered, Migratory, cetacean | Species or species habitat may occur within area |
| <i>Megaptera novaeangliae</i> | Humpback whale | Vulnerable, Migratory, cetacean | Species or species habitat may occur within area |
| <i>Balaenoptera edeni</i> | Bryde's whale | Migratory, cetacean | Species or species habitat may occur within area |
| <i>Orcinus orca</i> | Killer whale, orca | Migratory, cetacean | Species or species habitat may occur within area |
| <i>Sousa chinensis</i> | Indo-Pacific humpback dolphin | Migratory, cetacean | Species or species habitat may occur within area |
| <i>Tursiops aduncus</i> (Arafura/Timor Sea populations) | Spotted bottlenose dolphin (Arafura/Timor Sea populations) | Migratory, cetacean | Species or species habitat likely to occur within area |
| <i>Balaenoptera acutorostrata</i> | Minke whale | Cetacean | Species or species habitat may occur within area |
| <i>Delphinus delphis</i> | Common dolphin | Cetacean | Species or species habitat may occur within area |
| <i>Grampus griseus</i> | Risso's dolphin, grampus | Cetacean | Species or species habitat may occur within area |
| <i>Stenella attenuate</i> | Spotted dolphin, pantropical spotted dolphin | Cetacean | Species or species habitat may occur within area |
| <i>Tursiops aduncus</i> | Spotted bottlenose dolphin, | Cetacean | Species or species habitat likely |

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| Scientific Name | Common Name | Status | Type of Presence |
|-----------------------------------|----------------------------------|----------------------------------|--|
| | Indian Ocean bottlenose dolphin. | | to occur within area |
| <i>Tursiops truncatus s. str.</i> | Bottlenose dolphin | Cetacean | Species or species habitat may occur within area |
| <i>Dugong dugon</i> * | Dugong | Migratory, listed marine species | Species or species habitat likely to occur within area |

*Not a cetacean

Blue whales and the other species of whales listed (**Table 1**) are unlikely to frequent the nearshore waters off Cape Lambert, tending to remain in deep water (>20 m) (Prince 2001). However, compared with all the other whale species, the occurrence of the humpback whale (*Megaptera novaeangliae*), in the Dampier/Cape Lambert area is reasonably well documented (Jenner et al. 2001). Humpback whales are regularly sighted during their seasonal migration along the Pilbara coastline, and have been spotted close to the mainland near Cape Lambert. Prince (2001) undertook aerial surveys of marine mammals and other large fauna of the Pilbara coast in 2000 and concluded that Pilbara coastal waters support small populations of dolphins, the majority of which appear to be bottlenose (*Tursiops* sp.). Dolphins are frequently sighted in the development area surrounding the Cape Lambert wharf. However, due to their intelligent and mobile nature, the risk of direct strike with dolphins is considered low.

For these reasons, humpback whales are the key focus for this Cetacean Management Plan. However, the management measures will also mitigate impacts to other cetacean species should they frequent the area. Potential impacts to dolphins will be covered in the marine mammals management plan that forms part of the DSDMP.

1.3. Humpback Whale Background

Humpback whales are generally found in waters greater than 20 m (Prince 2001). Their northern and southern migration routes pass off the coast of Cape Lambert and can stretch up to 50km wide (Jenner et al. 2001). Some humpback whales, during their seasonal migration along the Pilbara coastline, are spotted close to the mainland near Cape Lambert. The Humpback whale migration patterns off Cape Lambert are not known in detail (Jenner et al. 2001), however their numbers may have increased significantly since the last studies were carried out. During their migration along the West Australian coast, the northern migration off the coast of Cape Lambert peaks at the end of July and early August (Jenner et al. 2001). The peak south bound migration in the region occurs at the end of August and early September. The exact time that the peak density of the migratory body passes a given point on the coast can vary by as much as three weeks from year to year (Jenner et al. 2001). This is important in noting that humpback whales are not expected to occur all year-round at Cape Lambert (**Table 2**).

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Table 2 Predictable occurrence periods for Humpback whales in the Cape Lambert area

| | Month | | | | | | | | | | | |
|--------------------|-------|-----------------------------|-----|-----|-----|-----------------------------|-----|-----|-----|--------------------------|-----|-----|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Northern Migration | | | | | | | | | | | | |
| Southern Migration | | | | | | | | | | | | |
| <i>Legend</i> | | <i>Predicted occurrence</i> | | | | <i>Potential occurrence</i> | | | | <i>Unlikely to occur</i> | | |



2. Management

2.1. Vessel Movement

The following mitigation and management measures have been put in place to reduce potential impact from vessel strikes to cetaceans during the construction phase (incorporating the dredging and jetty/wharf works) of the Port B development (**Table 3**).

■ **Table 3 Cetacean vessel movement mitigation and management measures**

| Performance Objectives | Targets | Key Performance Indicators |
|--|---|--|
| To limit impacts to marine mammals in the project area | No impacts to marine mammals as a result of vessel movement | The number of reported injured or dead marine mammals within 1 km of the construction site |
| Management Measures Cape Lambert Port B Development Cetacean Management Plan <ul style="list-style-type: none"> ■ Prior to commencement of dredging and construction activities, all crew will receive training from a qualified person. This training will include details of procedures to be followed in the event of marine mammals sighting, injury or death. ■ Marine mammals (except dolphin) observation and response procedures including the application of a 300 m exclusion zone (piling activities separate (refer to Table 4)) will be implemented during dredging or construction works. ■ A lookout will be maintained for cetaceans while any dredging or construction vessels travel within the project area. In the event that a cetacean is sighted, vessels speeds and direction will be adjusted to avoid impacting on the observed individual (within the safety constraints of the vessel). ■ All sightings of marine mammals (except dolphins) will be recorded (Appendix A). ■ All marine mammal (including dolphin) injury or mortality incidents will be recorded and reported to the DEC and DEWHA within 48 hours. | | |

2.2. Predicted Outcome

There is a low risk of collision between vessels and cetaceans as a result of the Port B development. This outcome will be consistent with the earlier and similar work undertaken at Cape Lambert where there was no recorded injuries to marine fauna associated with the dredging activity or shipping movement. As such the EPA objectives to maintain the abundance, biodiversity, productivity and geographic distribution of marine fauna will be achieved.



2.3. Underwater Noise Mitigation

The following mitigation and management measures have been put in place to reduce any potential impact from underwater noise to cetaceans during the construction phase of the Port B development (Table 4).

■ Table 4 Cetacean underwater noise mitigation and management measures

| Performance Objectives | Targets | Key Performance Indicators |
|--|--|--|
| To limit impacts to marine mammals in the project area | No impacts to marine mammals as a result of piling or drill and blast activity | The number of reported injured or dead marine mammals within 1 km of the construction site |
| <p>Management Measures</p> <p>Cape Lambert Port B Development Marine Cetacean Management Plan</p> <p>Pile driving management and monitoring measures:</p> <ul style="list-style-type: none"> ■ Acoustic controls on the pile drivers will be implemented to reduce noise at source. ■ If humpback whales or other cetaceans are observed within 2.5 km (SVT 2009) of the new wharf then pile driving will commence with a partial capacity strike or warning with an airgun to disperse any animals in the vicinity prior to normal pile driving. ■ Soft start-up procedures will be implemented for pile driving activities whereby the pile driving hammer power will be gradually increased over a 15 minute period. ■ An exclusion zone of 500 m, based criteria recommended by the EPBC Act policy statement 2.1 (DEWHA 2008) and supported by modelling (SVT 2009), will be established that limits significant noise emitting activities, including pile driving, when cetaceans are within close proximity to operations. Management should aim to ensure that no marine mammal is inside the exclusion zone when piling begins and operations are suspended if animals come within the possible zone of injury. Specifically, the following should apply: <ul style="list-style-type: none"> ■ A marine fauna exclusion zone for sensitive species (i.e. Humpback whales) consisting of a 500 m radius from the noise emission source (ie pile driving) should be implemented. Marine fauna observers are to undertake marine fauna observation for a minimum of 15 minutes prior to noise emitting activities. Should sensitive marine fauna be present or enter the 500 m exclusion zone, noise emitting activities are not to commence until such time as the animal has moved outside the 500 m exclusion zone or has not been sighted for 15 minutes. ■ Should sensitive marine fauna approach to within 100m of the noise emission source during operations, pile driving is to be suspended until the animal has moved outside the 500 m exclusion zone or has not been sighted for 15 minutes. ■ Pile driving conducted during daylight hours only. However, the Proponent will apply to pile drive at night, outside the turtle season, if required. <p>Management of underwater drill and blast</p> <p>If underwater drill and blast is required, a Blasting Management Plan will be developed prior to commencement which will include:</p> <ul style="list-style-type: none"> ■ A description of the drill and blast methodology, developed according to detailed site characteristics not available to date (i.e. area and depth to be blasted, rock hardness and proximity of other infrastructure) and environmental protection requirements ■ Environmental management including: <ol style="list-style-type: none"> a) identification of potential impacts to the marine environment b) nomination of target blast pressures to afford suitable protection to the environment c) area inspection from a vessel immediately prior to the blast to identify if large marine fauna are present in the immediate area d) confirmation that large marine fauna have cleared the area before the blast is initiated (have | | |

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| |
|--|
| <p>not been sighted from a vessel for at least 20 minutes or are more than an agreed distance from the blast site)</p> <p>e) post blast inspection from a vessel for injured or dead fauna</p> <p>f) management of injured fauna</p> <p>g) stakeholder communication</p> <p>h) reporting requirements.</p> <p>The management approach is based on that undertaken for the recent Dampier Port upgrade, and no reports of injured or deceased marine mammals or cetaceans were recorded as a result of the drill and blast program.</p> |
|--|

2.4. Predicted Outcome

There will be no long term detrimental effect to the marine environment as a result of piling. The Cetacean Management Plan outlines specific mitigation and monitoring measures to limit impacts.

2.5. Distances of Detection and Exclusion Summary

The different zones of observation and exclusion for cetaceans during vessel movement, dredging and disposal and noise emitting construction activities (piling) are outlined in **Table 5**. Criteria that were used for assessment of pile driving were derived from recommendations from the EPBC Act policy statement 2.1 and supported by SVT 2009. The criteria have been based on seismic surveys as data to determine the criteria for pile driving is not available.

■ Table 5 Precaution zones surrounding dredge and construction works

| Activity | Observation Zone | Exclusion Zone | Suspension Zone |
|------------------------------|------------------|----------------|-----------------|
| Piling | 2.5 km | 500 m | 100 m |
| Vessel movement/ dredging | 1 km | 300 m* | 300 m* |

* This does not apply for dolphins.

Observation Zone – This is the radius cetaceans and their movements will be monitored. Within the distance set for piling activities, a partial capacity strike or warning will occur before commencement. The 2.5 km distance was based on the EPBC Act policy statement 2.1 and refined from the 160 db maximum range modelled by SVT (SVT 2009).

Exclusion Zone – If a whale moves within this radius; piling, dredging or spoil disposal work will not commence until the animal has moved outside this zone.

Suspension Zone – Within this zone, piling activities will be suspended until the animal moves outside the exclusion zone. Where practical dredging will be suspended or vessel speeds/direction adjusted. Spoil disposal will not be suspended once commenced.

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3. Monitoring

The proponent will undertake opportunistic surveys to collect whale (and dolphin) data as part of the marine monitoring program proposed to commence several months before dredging. Opportunistic surveys will also be undertaken during the dredge monitoring programs. This will contribute to the knowledge of cetacean abundance and distribution in the region. The survey template for this opportunistic survey program is attached (**Appendix A**).

Additionally, an opportunity to record any sightings of cetaceans by staff within the proposed development area will be provided. Training on the identification of cetaceans and the procedure in completing the survey forms will be available to personnel involved with the Port B development and possibly the Cape Lambert Operations personnel (e.g. helicopter pilots). All data collected from these opportunistic cetacean surveys will be available to the DEC and DEWHA should it be requested, in an effort to help increase knowledge of cetacean movement around the Cape Lambert area.



4. References

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Appendix A Cetacean and Marine Fauna Survey Form

Cetacean and Marine Fauna Survey Form

1. Observer

Details

Observer:

Vessel/Organisation:

Monitoring Program:

2. Location and Time

Date (dd/mm/yyyy):

Time (24hrs):

Latitude: degrees min South

Longitude: degrees min East

Name of Location (Closest Reference site): Water depth: meters

Habitat (Open water, reef, nearshore):

3. Sighting Details

Whale Dolphin Dugong Turtle

Other...

Common name (+ Scientific if known):

Number of Individuals: Approx Certain Size of Individual/s

Brief description of sighting and animal behaviour (ie breaching, mating, feeding, travelling, etc):

Photos available No/Yes

4. Weather and Sea State Condition

Wind direction and speed:

Sea State:

Cloud Cover:

Overall Visibility:

5. Notes: