



# Byron 3D Marine Seismic Survey Environment Plan Summary

**Geotechnical Operations**

Date: April 2011

Status: FINAL

[Confidential]

# 1 BACKGROUND

Woodside Energy Limited (Woodside) proposes to conduct the Byron three-dimensional (3D) Marine Seismic Survey (MSS) located in the Browse Basin, within Commonwealth waters, approximately 219 km from the nearest stretch of coastline in North-western Western Australia (WA) (nearest town Broome) (Figure 1). The Byron 3D MSS acquisition area lies in exploration permits WA-397-P and WA-396-P. The survey will be undertaken over a 21 day period between April and June 2011.

The Byron 3D MSS is required to assist in the exploration of these permits and to meet the work program commitments to acquire 250 km<sup>2</sup> of 3D seismic data in each permit by March 2012.

This document provides a summary of the Byron 3D MSS Environment Plan (EP) (WEL Ref: 7222154) which was accepted by Department of Mines and Petroleum (DMP) on 18 April 2011 as meeting the requirements for an EP under Regulation 11(1) of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009*. In addition the EP also describes how the survey is being planned and conducted in line with Woodside's Corporate Environment Policy and the Woodside Environmental Management System.

The EP presents the findings and conclusions of the Environmental Risk Assessment (ERA) completed by Woodside for the key environmental risks associated with the Byron 3D MSS (routine and non-routine operations). The EP then presents the preventative and management measures that will be implemented to ensure that any adverse impacts are managed to be as low as is reasonably practicable (ALARP).

Woodside did not refer the Byron 3D MSS to the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) under the *Environmental Protection and Biodiversity Conservation Act* (EPBC Act) as the ERA process did not identify any significant impacts to matters of national environmental significance. This was expected given the timing of the survey outside of whale migrations and the location of the survey area in deep offshore waters.

## 2 DESCRIPTION OF THE ACTIVITY

### 2.1 Location

The proposed Byron 3D MSS will be conducted entirely in Commonwealth waters over an acquisition area of 567 km<sup>2</sup>. Data will be acquired within the survey area within Exploration Permit Areas WA-397-P and WA-396-P (Figure 1).

A much larger operational area will be required in order to allow for vessel turning and soft starts (Figure 1). The operational area will cover an area of 1,846 km<sup>2</sup> extending into the Retention Lease Areas WA-31-R and WA-32-R (also operated by Woodside). Boundary coordinates of the Byron 3D MSS are provided in Table 1 and Table 2.

The closest point of the Byron 3D MSS survey acquisition area is located approximately 28 km south of the southernmost boundary of Scott Reef and 219 km northwest from the nearest stretch of coastline. The water depth across the Byron 3D MSS acquisition area ranges from approximately 250 m to 450 m.

**Table 1: Boundary coordinates for the Byron 3D MSS acquisition area (GDA94)**

Location Point	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
1	14°	36'	05.58"S	121	45'	30.77"E
2	14°	27'	51.51"S	121°	45'	33.03"E
3	14°	27'	53.30"S	122°	02'	40.41"E
4	14°	33'	02.60"S	122°	08'	25.70"E
5	14°	36'	11.47"S	122°	03'	52.05"E

**Table 2: Boundary coordinates for the Byron 3D MSS operational area (GDA94)**

Location Point	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
1	14°	25'	10.38"S	121	39'	59.84"E
2	14°	25'	14.01"S	122°	14'	02.05"E
3	14°	41'	39.30"S	122°	13'	58.67"E
4	14°	41'	28.91"S	121°	39'	54.81"E

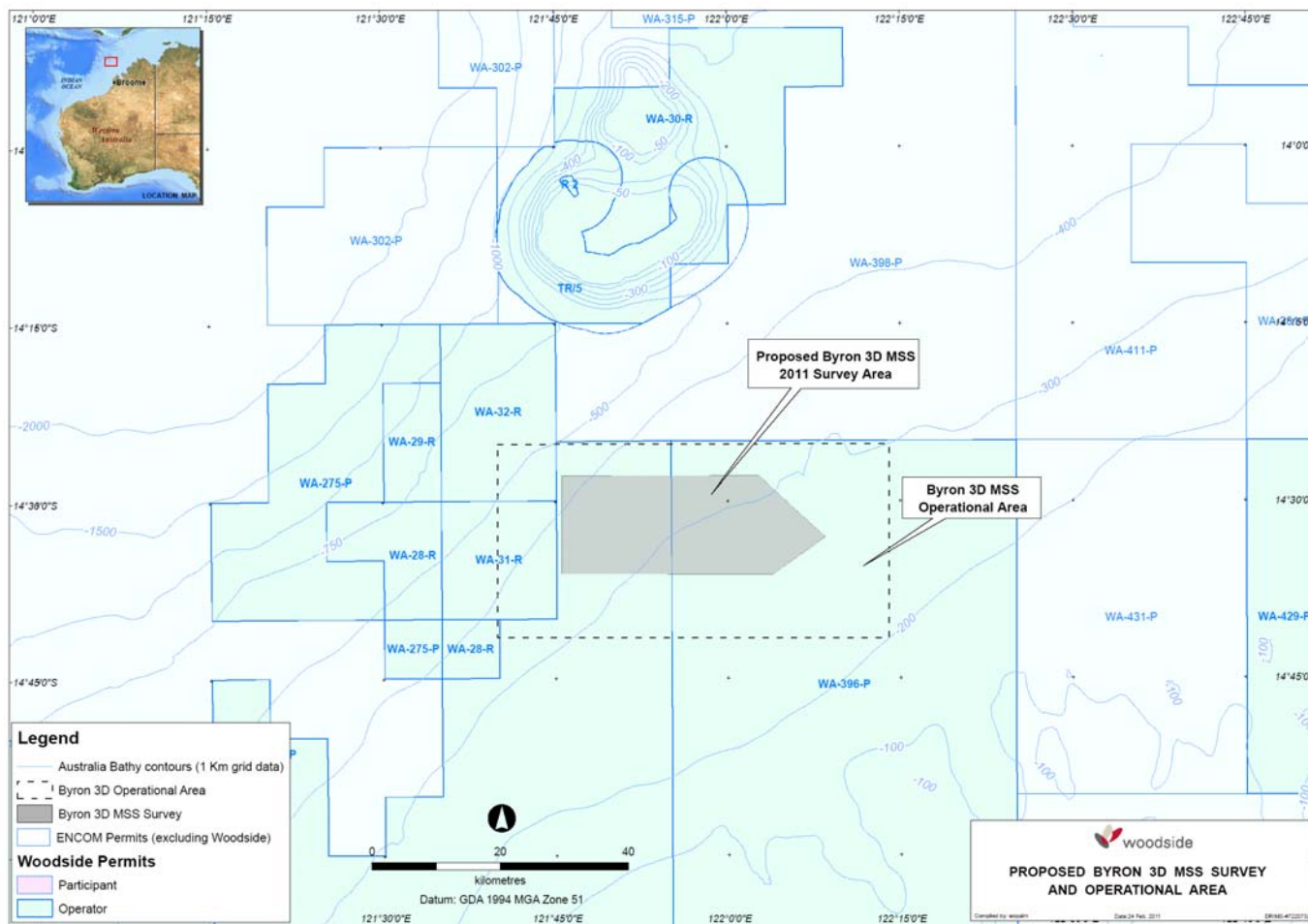


Figure 1: Proposed Byron 3D MSS Data Acquisition and Operational Areas

## **2.2 Proposed operations**

The proposed Byron 3D MSS will be conducted using a specialised 3D capable seismic vessel (Ramform Stirling) and a support vessel (Ocean Dynasty) to provide logistical, safety and gear management support to the seismic vessel. The seismic vessel will tow dual acoustic source arrays at a depth of 5-6 m and 14 solid hydrophone cables (streamers) at a depth of 7-9 m, with each cable a maximum length of 6 000 m and separated by 100 m. The acoustic source uses compressed air, with an operating pressure of approximately 2 000 psi and a volume of approximately 4 130 in<sup>3</sup>. The vessels will traverse the survey area in a series of pre-determined lines at a speed of approximately eight km/hour. The survey lines have been defined on the basis of survey optimisation.

The Byron 3D MSS will be conducted in accordance with all relevant Commonwealth Acts and regulations, with procedures in place to govern the survey activities that involve potential environmental impacts, including cetacean interaction, refuelling operations, streamer handling and maintenance, and vessel encounters.

## **3 EXISTING ENVIRONMENT**

### **3.1 Benthic habitat**

The Byron 3D MSS located over the continental shelf in water depths ranging from approximately 250 to 450 m. The seabed topography across the region is highly variable, from areas of flat seabed to areas with large calcarenite ridges and sandwaves. The seabed of the survey area comprises soft, silty clay/clayey silt sediments over the majority of the area, grading to more consolidated sediments in areas where erosion has exposed layers of stiff clay and cemented silt (Fugro 2006; Gardline 2009). More granular sediments occur in areas of stronger bottom currents.

The survey area is too deep to provide suitable conditions for seagrass, macroalgae and significant coral growth. The survey area is likely to include sparse and scattered epifaunal assemblages comprising of sea fans and whips, feather stars, bryozoans, sea pens, hydroids, isolated hard coral colonies, sea anemones, sponges and sea urchins. Infaunal macrobenthos are likely to include polychaete worms and crustacean.

### **3.2 Threatened, migratory and listed species**

The Byron 3D MSS is not likely to have significant impacts on threatened, migratory or listed species under the EPBC Act. A search of the EPBC Protected Matters database indicated that a total of 17 marine species listed as 'threatened' and/or migratory under the EPBC Act may occur within, or pass through the proposed Byron 3D MSS area (Table 3). The search also identified a total of 49 other marine species which are listed under the EPBC Act.

**Table 3: EPBC Protected Matters Report for the Byron 3D MSS area**

Type	Common Name	Scientific Name	Status
Cetaceans	Blue Whale	<i>Balaenoptera musculus</i>	Endangered/Migratory- Species or species habitat may occur within area
	Humpback Whale	<i>Megaptera novaeangliae</i>	Vulnerable/Migratory- Species or species habitat may occur within area
	Antarctic Minke Whale	<i>Balaenoptera bonaerensis</i>	Migratory Species or species habitat likely to occur within area
	Bryde's Whale	<i>Balaenoptera edenis</i>	Migratory Species or species habitat likely to occur within area
	Killer Whale/Orca	<i>Orcinus orca</i>	Migratory Species or species habitat likely to occur within area
	Sperm Whale	<i>Physeter macrocephalus</i>	Migratory Species or species habitat likely to occur within area
Marine Reptiles	Green Turtle	<i>Chelonia mydas</i>	Vulnerable/Migratory- Species or species habitat may occur within area
	Leatherback Turtle	<i>Dermochelys coriacea</i>	Endangered/Migratory- Species or species habitat may occur within area
	Flatback Turtle	<i>Natator depressus</i>	Vulnerable/Migratory- Species or species habitat may occur within area
	Hawksbill Turtle	<i>Eretmochelys imbricata</i>	Vulnerable/Migratory- Species or species habitat may occur within area
	Loggerhead Turtle	<i>Caretta caretta</i>	Endangered/Migratory- Species or species habitat may occur within area
	Olive Ridley Turtles Pacific Ridley Turtle	<i>Lepidochelys olivacea</i>	Endangered/Migratory – Species or species habitat may occur within area
Fish	Whale shark	<i>Rhincodon typus</i>	Vulnerable/Migratory - Species or species habitat may occur within area
	Shortfin Mako Shark	<i>Isurus oxyrinchus</i>	Migratory Species or species habitat likely to occur within area
	Longfin Mako Shark	<i>Isurus paucus</i>	Migratory Species or species likely to occur within area
Birds	Streaked Shearwater	<i>Calonectris leucomelas</i>	Migratory Species or species habitat may occur within area
	Streaked Shearwater	<i>Puffinus leucomelas</i>	Migratory Species or species habitat may occur within area

### 3.2.1 Cetaceans

The EPBC Act Protected Matters search identified two baleen whale species listed as 'threatened', the blue whale (*Balaenoptera musculus*), and humpback whale (*Megaptera novaeangliae*), that may occur within, adjacent to or migrate through the survey area.

#### Blue Whale

There are two recognised subspecies of blue whale in the Southern Hemisphere which are both recorded in Australian waters, the southern (or 'true') blue whale (*Balaenoptera musculus intermedia*) and the 'pygmy' blue whale (*Balaenoptera musculus brevicauda*). In general, southern blue whales occur in waters south of 60° S and pygmy blue whales occur in waters north of 55°S (i.e. not in the Antarctic). On this basis nearly all blue whales sighted off the NWS are likely to be pygmy blue whales which are discussed below.

Pygmy blue whales migrate annually north to mate and calve in warm tropical waters (unknown areas in Indonesian waters) and then migrate south (January to April) to feed during the summer-autumn in productive regions in temperate latitudes. One well documented feeding aggregation site is the Perth Canyon (Jenner *et al.*, 2001; McCauley *et al.* 2004). While migration routes are still relative unknown, data (visual and acoustic) indicate that pygmy blue whales migrate along the Western Australian coast, and that there is a southern migration pulse off NW Cape between October and late December (McCauley & Jenner 2010) (McCauley and Salagdo Kent 2008). This data indicates that the southern migratory pathway is concentrated along the shelf edge along the 500 m bathymetric line. The location of the Byron 3D MSS does not include any known critical habitat for pygmy blue whales and survey timing will occur at a time when animals are unlikely to be present.

#### Humpback Whale

Humpback whales have a wide distribution, with recordings throughout Australian Antarctic waters and off all Australian states (Bannister *et al.*, 1996). Humpback whales migrate annually north to mate and calve in warm tropical waters (approximately 15-20°S) during June to August and then migrate south (approximately 60-70°S) during September to November to feed in the colder Southern Ocean from December through to May. This species is considered to have two migratory populations in Australia (west coast and east coast populations).

The west coast population continues to show strong positive trends in post whaling recovery of the population. The west coast population migration routes follow the coast to calving grounds located in inshore northern WA waters between the Lacepede Islands and Camden Sound (Jenner *et al.*, 2001), (DEWHA 2009a).

The northern migration (June – mid August) of the west coast population tends to be more offshore (compared to the southern migration) but predominantly within the 500 m bathymetry, peaking in late July to early August (in the vicinity of NW Cape) (Jenner *et al.*, 2001). The southern migration (September – November) lies predominantly within the 200 m bathymetry and peaks in mid-September. A peak in cows and calves occurs two to three weeks later (in the vicinity of the NW Cape) (Jenner *et al.*, 2001), (Woodside, 2002). Cow and calves aggregate in Exmouth where they rest during the southern migration (Chittleborough 1953). There is a peak in whale numbers during the transition between north and south migrations in late August (in the vicinity of the NW Cape).

Humpback whales are unlikely to be present during the Byron 3D MSS which will be undertaken prior to the start of the northern migration period and in an area that lies west of the main northern migratory route within the 500 m bathymetry.

### 3.2.2 Migratory Marine Mammals

The EPBC Protected Matters search (SEWPaC, 2010a) identified six migratory cetacean species which may occur within, adjacent to or migrate through the survey area. These include the blue whale and humpback and another four species including two baleen whale species, Antarctic minke (*Balaenoptera bonaerensis*) and Bryde's whales (*B. edeni*) and two toothed whale species, killer whale (*Orcinus orca*) and sperm whale (*Physeter macrocephalus*). Available data suggests that cetacean biodiversity is high in the region, however actual numbers of each species are low (McCauley and Salgado-Kent 2008, Jenner et al. 2009). The Byron 3D MSS is not known to include any significant habitat for these six species.

### 3.2.3 Threatened migratory turtles

The EPBC Protected Matters search (SEWPaC, 2010A) identified six marine turtle species listed as migratory which may occur within, adjacent to or migrate through the survey area. Three of these species are listed as "Vulnerable" including the green (*Chelonia mydas*), flatback (*Natator depressus*), and hawksbill (*Eretmochelys imbricata*) turtles and three species listed as "Endangered" the loggerhead turtle (*Caretta caretta*), leatherback turtle (*Dermochelys coriacea*) and olive ridley turtle (*Lepidochelys olivacea*).

Four of the turtle species (green, loggerhead, flatback and hawksbill) have significant nesting beaches along the mainland coast and islands in the region. The turtle breeding season occurs October to April with the majority of nesting occurring between October and December and hatching December to April. The leatherback turtle is not known to nest in Australia but is being a pelagic feeder occurring globally in tropical, subtropical and temperate waters (Limpus 2004).

The Byron 3D MSS is not located in any significant turtle habitat (mating, aggregation, nesting, nursery, resting or feeding areas) and is located greater than 45 km from the nearest nesting beach. The timing of the Byron 3D MSS occurs towards the end of the main turtle hatching period from December to April.

### 3.2.4 Threatened and Migratory Fish

The EPBC Protected Matters search (SEWPaC, 2010a) identified three species of shark listed as migratory, the whale shark (*Rhincodon typus*), Mako Shark (Shortfin) (*Isurus oxyrinchus*) and Mako Shark (Longfin) (*I. paucus*).

The Whale Shark is an oceanic and coastal, tropical to warm-temperature pelagic shark, generally found in areas where the surface temperature is 21–25 °C. It is commonly encountered close to or at the surface. Whale Sharks are highly migratory, with its movements associated with productivity pulses, ocean circulation and water temperatures (Compagno 2001 cited in Wilson *et al.* 2006; Wilson *et al.* 2001). A significant whale shark feeding aggregation has been identified at the Ningaloo Reef off the WA coast between March and July which corresponds with coral mass spawning events. Following these aggregations whale sharks have been identified to travel north-east along the continental shelf before moving offshore into the north-eastern Indian Ocean. Only isolated and infrequent observations of individuals, and preliminary research on the migration patterns of whale sharks in the western Indian ocean indicate that a small number of the WA population migrate through the Browse region (McKinnon *et al.* 2002, Wilson *et al.* 2006, Jenner *et al.* 2009, Meekan and Radford 2010)

The Shortfin Mako Shark is a wide-ranging oceanic and pelagic shark. The shortfin mako is probably the fastest of all sharks and can grow to almost 4 meters. The shortfin mako is widespread in Australian waters, but is rarely found in water below 16°C (DEWHA, 2010b).

The Longfin Mako Shark is a widely distributed, but rarely encountered oceanic tropical shark. The longfin mako is often confused with its slightly more slender-bodied relative, the shortfin mako. The longfin mako can grow to just over 4 m and is found in Australian waters south to Geraldton in Western Australia and to at least Port Stephens in New South Wales (DEWHA, 2010b).



### **3.3 Conservation reserves**

There are no Marine Conservation Reserves within the Byron 3D MSS area. Scott Reef is located 28 km to the north of the Byron 3D MSS area and is not presently listed as a Marine Conservation Area. However, Sandy Islet, East Hook and the intertidal reef flat of south Scott Reef are included as an area of 'reserved land' under the Land Administration Act 1997 (formally 'C' Class Nature Reserve) vested in the WA Conservation Commission.

### **3.4 Cultural Heritage**

There are no known sites of Aboriginal or European cultural significance within the Byron 3D MSS area.

### **3.5 Socio-economic environment**

#### **3.5.1 Fisheries**

Four Commonwealth managed fisheries, the North West Slope Trawl, Western Tuna and Billfish, Southern Bluefin Tuna and Western Skipjack Tuna fisheries overlap the Byron 3D MSS area. It is unlikely that the survey will impact (i.e. temporarily displace) these fisheries due to the surveys short duration, small survey area and the periodic fishing activities that occur within a large fishery area.

Four State managed fisheries, the Northern Demersal Scalefish, Northern Shark, Mackerel and Pearl Oyster fisheries overlap the Byron 3D MSS area. It is unlikely that the survey will impact (i.e. temporarily displace) these fisheries due to the surveys short duration, small survey area and the periodic fishing activities that occur within a large fishery area.

No other fisheries (including recreational fisheries) are known to occur in or near the proposed Byron 3D MSS area due to its remote deep water offshore location. The survey area is approximately 219 km from the coast in water depths ranging 250 – 450 m which have relatively featureless seabed that is not very productive for fish.

#### **3.5.2 Petroleum and gas**

There is ongoing exploration and development of petroleum and gas resources in the Browse Basin. The Browse Basin is accessed regularly by drill rigs, survey vessels and associated support vessels.

#### **3.5.3 Tourism**

The remote offshore and deepwater location of the Byron 3D MSS, 219 km off the coast and lies outside of any areas accessed by commercial tourism.

#### **3.5.4 Shipping**

Deep offshore areas are subject to regular coastal shipping traffic which would be expected to pass through and near the Byron 3D MSS area.

## **4 POTENTIAL ENVIRONMENTAL EFFECTS**

The environmental risks and potential environmental impacts of the proposed Byron 3D MSS have been determined on the basis of Woodside's previous seismic experience in the region and the outcomes of an environmental risk assessment.

The risk assessment indicates that the residual risk for the proposed Byron 3D MSS can be categorised as having low to medium risk levels.

A summary of the key sources of environmental risk (aspects) assessed for the proposed survey include:

- anchoring or grounding of vessels used for the activity;

- dragging or loss of equipment associated with the activity;
- generation of acoustic signals;
- light generation from vessels;
- operation of vessels and towed equipment;
- emissions to atmosphere from vessels;
- routine discharge of wastewater and waste to ocean from vessels;
- accidental discharge of hydrocarbons and chemicals to ocean from vessels;
- ballast water discharge and vessel biological fouling; and
- interactions with shipping and commercial and fishing activities.

A summary of the potential environmental impacts associated with the above sources of environmental risk include:

- disturbance to marine habitats including seabed and benthic habitats;
- disturbance to marine fauna including marine mammals, marine turtles and fish;
- reduced air quality from atmospheric emissions as a result of operation of machinery and use of internal combustion engines;
- introduction of invasive marine species as a result of ballast water discharge and vessel biological fouling;
- marine pollution from routine discharges including sewage water, bilge water and other solid wastes;
- marine pollution from accidental discharges including hydrocarbon spills and hazardous materials;
- disturbance to social and community values due to interactions with commercial fisheries and shipping vessels;
- disturbance to heritage and conservation values due to operation of vessels within marine conservation reserves.

The impacts of sound generated by the acoustic source and vessel operation will be minimal given the expected low abundance/density of marine fauna in the survey area, low sound propagation due to water depth, survey duration and compliance with *EPBC Act Policy Statement 2.1 Interaction between offshore seismic exploration and whales*.

The Byron 3D MSS will involve the use of two vessels travelling at slow speed (around 4 knots) along defined paths over a relatively short period (6 weeks). The timing and location of the survey does not coincide with any major/peak fauna migrations or critical habitat. The density of marine fauna is therefore likely to be low and as such the probability of adverse fauna interactions also low.

The routine discharge of sewage and putrescibles wastes from survey vessels should comply with MARPOL requirements. Vessel management procedures, equipment and personnel are in place to prevent and mitigate against any potential accidental discharge of pollutants.

## **5 SUMMARY OF MANAGEMENT APPROACH**

Woodside's environmental management strategies and procedures to be used for the Byron 3D MSS include responsibilities, training, reporting frameworks, mitigation and response activities and monitoring and auditing procedures. Commitments associated with these (Table 4) will be used to reduce environmental risk to As Low As Reasonably Practicable (ALARP).

## **6 STAKEHOLDER CONSULTATION**

Woodside will contact any relevant stakeholders prior to the commencement of the Byron 3D MSS and issue a 'Fact Sheet' providing relevant information on the surveys.

Any contact or interaction with commercial fishers, other vessels and/or other individuals during the surveys will be recorded in the vessel log by the masters of the survey vessels (seismic vessel and support vessels)

Any communications or complaints from stakeholders received during the survey period will be dealt with and resolved as per Woodside corporate communications standards.

## **7 CONTACT DETAILS**

For further information on this proposal please contact:

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**Table 4: Byron 3D MSS– Summary of Commitments**

No	Objective	Commitments/Criteria
1.	No significant impact to marine fauna	<ul style="list-style-type: none"> <li>• Adherence to <i>EPBC Act Policy Statement 2.1</i> –(DEWHA 2008) and the following additional mitigation measures:               <ul style="list-style-type: none"> <li>• Precaution zones (Observation zone: 3km+; Low power zone: 2km; and Shutdown zone: 500m)</li> <li>• Dedicated Marine Fauna Observer/s on seismic vessel;</li> <li>• Detailed reports of all cetacean sightings will be recorded using the SEWPaC Cetacean Sightings Application (database) (<a href="http://data.aad.gov.au/aadc/ammc/index.cfm">http://data.aad.gov.au/aadc/ammc/index.cfm</a> )</li> </ul> </li> <li>• Adherence to the SEWPaC Whale Interaction/Watching Guidelines 2005;</li> <li>• In conjunction with the cetacean mitigation measures the MFO will:               <ul style="list-style-type: none"> <li>• If turtles or whale sharks are sighted within 500m horizontal radius of source vessel, the acoustic source will be shut down; and</li> <li>• undertake visual observations for turtles &amp; whale sharks for at least 10 minutes prior to the commencement of soft start, focusing on a 500m horizontal radius of the source vessel.</li> <li>• Provide details records and reports of all turtle and whale shark sightings.</li> </ul> </li> </ul>
2.	No significant impact to marine habitats	<ul style="list-style-type: none"> <li>• Survey vessels will not enter coastal waters or Scott Reef, in particular marine conservation reserves during normal operations and will aim to avoid entering them and/or anchoring in them during emergencies. In the event that anchoring is required (during an emergency) all reasonable measures will be taken to avoid/minimise damage to sensitive habitat;</li> <li>• Appropriate operational procedures for all seismic equipment/operations in place;</li> <li>• Lost equipment will be recovered where possible; and</li> <li>• A register of lost equipment will be maintained.</li> </ul>
3.	Minimise emissions to atmosphere from operation of vessels	<ul style="list-style-type: none"> <li>• Compliance with MARPOL 73 / 78 Annex VI (as implemented in Commonwealth waters by the Commonwealth <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>).</li> </ul>
4.	No introduction of marine introduced marine species or spread of existing introduced	<ul style="list-style-type: none"> <li>• Adherence the AQIS Australian Ballast Water Management Requirements; and</li> <li>• Woodside IMS risk assessment process will be applied to all vessels and immersible equipment and management measures applied</li> </ul>

No	Objective	Commitments/Criteria
	marine species	as commensurate with the risk.
5.	No significant impact on marine environment from routine operational discharges e.g. sewage and putrescible wastes	<ul style="list-style-type: none"> <li>• All sewage will be managed and disposed of in accordance with MARPOL 73/78 Annex IV (as implemented in Commonwealth waters by the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>);</li> <li>• All sewage will be managed and disposed of in accordance with MARPOL 73/78 Annex V (as implemented in Commonwealth waters by the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>);</li> <li>• All sewage and putrescibles waste treatment systems are IMO compliant and fully operational at mobilisation and during the survey;</li> <li>• A Vessel Waste Log will be maintained to record waste management practices;</li> </ul>
6.	No significant environmental impact from routine storage, handling and disposal of solid and hazardous wastes	<ul style="list-style-type: none"> <li>• Bilge water will be treated and disposed in accordance with MARPOL 73/78 Annex I (as implemented in Commonwealth waters by the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>);</li> <li>• Bilge water that is contaminated and can not be treated and disposed in accordance with MARPOL 73/78 Annex I must be contained and disposed of onshore;</li> <li>• All disposal of wastes (excluding putrescibles waste) will be treated and disposed in accordance with MARPOL 73/78 Annex III and V (as implemented in Commonwealth waters by the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>);</li> <li>• In addition to MARPOL requirements all solid, liquid and hazardous wastes (other than sewage, grey water and putrescibles waste) will be incinerated (in a MARPOL/IMO compliant incinerator) or compacted (if possible) and stored in appropriate containers and sent ashore for recycling, disposal or treatment;</li> <li>• All storage facilities and handling equipment will be in good working order and designed in such a way as to prevent and contain any spillage as far as practicable;</li> <li>• Vessel Waste Management Plan in place detailing wastes generated and disposal requirements; and</li> <li>• A Vessel Waste Log will be created and maintained to record quantities of wastes transported to shore.</li> </ul>
7.	No accidental hydrocarbon or chemical spills to the marine environment.	<ul style="list-style-type: none"> <li>• Hydrocarbons (oils and fuels) and chemical spills will be managed accordance with Woodside's Browse Basin Oil and Other Noxious and Hazardous Substances Spill Contingency Plan (OSCP) (WEL Doc No. W0000RH3920923)</li> <li>• Shipboard Oil Pollution Emergency Plans (SOPEP) will be prepared and kept onboard the vessels;</li> <li>• Operational procedures will be in-place on board the survey vessels for all operations that involve handling environmentally</li> </ul>

No	Objective	Commitments/Criteria
		<p>hazardous materials, oil and oily effluents/ waste during routine/ maintenance activities;</p> <ul style="list-style-type: none"> <li>• All hazardous substances (as defined in <i>NOHSC:1008(2004) – Approved Criteria for Classifying hazardous substances</i>) will have an Material Safety Data Sheet (MSDS) in place that is readily available on board;</li> <li>• All storage facilities in good working order and designed in such a way as to prevent and contain any spillage as far as practicable, i.e. secondary containment e.g. bunding, containment pallet, transport packs, etc.;</li> <li>• Appropriately stocked spill response bins/kits located in close proximity to hydrocarbon storage and work areas;</li> <li>• If at sea refuelling is required then the following conditions must be met:</li> <li>• Woodside is advised and approves at sea refuelling</li> <li>• At sea refuelling to occur &gt;12 nm from the boundary of any marine conservation reserves or sensitive marine areas;</li> <li>• Woodside approved refuelling procedure developed and implemented.</li> </ul>
8.	Minimise interference with commercial and recreational fishing and shipping.	<ul style="list-style-type: none"> <li>• Survey fact sheet will be developed and distributed to relevant stakeholders prior to commencement of survey. The fact sheet provides survey details including vessel descriptions and contact information;</li> <li>• Formal notifications provided to commercial shipping (e.g. Auscoast Warnings via AMSA); and</li> <li>• Support vessel/s (Chase boat/s) used to assist in the management of vessel interactions.</li> </ul>
9.	Minimise disruption to oil and gas activities.	<ul style="list-style-type: none"> <li>• Survey fact sheet will be developed and distributed to relevant stakeholders prior to commencement of survey. The fact sheet provides survey details including vessel descriptions and contact information;</li> <li>• Formal notifications provided to commercial shipping (e.g. Auscoast Warnings via AMSA); and</li> <li>• Support vessel/s (Chase boat/s) used to assist in the management of vessel interactions.</li> </ul>
10.	Minimise impacts to heritage and conservation values	<ul style="list-style-type: none"> <li>• Vessels will not during normal operations enter marine conservation reserves or sensitive marine areas, or Scott Reef within 10 km and during emergencies will aim to avoid entering marine conservation reserves or sensitive marine areas</li> </ul>