

CARTIER & CARTIER WEST MC3D MARINE SEISMIC SURVEYS ENVIRONMENT PLAN: PUBLIC SUMMARY

This summary of the Environment Plan for the Fugro Cartier & Cartier West MC3D marine seismic surveys, which will be acquired within the Bonaparte Basin offshore from Western Australia (WA), has been submitted to the Northern Territory (NT) Department of Regional Development, Primary Industry, Fisheries and Resources (DRDPIFR), to comply with sub-regulations 11(7) and 11(8) of the *Petroleum (Submerged Lands) (Management of Environment) Regulations 1999* (P[SL]MoE Regulations).

INTRODUCTION

Fugro Multi Client Services Pty Ltd (Fugro) proposes to undertake two multi-client (MC) three-dimensional (3D) marine seismic surveys (Cartier & Cartier West MC3D MSS) within the Bonaparte Basin offshore from Western Australia. The Cartier MC3D MSS will comprise a maximum of ~3,880 square kilometres (km²) of 3D seismic acquisition in Petroleum Permit Areas AC/P21, AC/P22, AC/P34, AC/P45, AC/P46 and Lease Area AC/L6, in Australia's External Territory of Ashmore and Cartier Islands. The Cartier West MC3D MSS will comprise a maximum of ~500 km² of 3D seismic acquisition in Petroleum Permit Area AC/P52 in Australia's External Territory of Ashmore and Cartier Islands.

COORDINATES OF THE PROPOSED ACTIVITY

The survey areas are located approximately 220 km from the Kimberley coast of Western Australia and 180 km from the Indonesian archipelago and the island of Timor. The survey areas are situated in Commonwealth waters in the Territory of Ashmore Cartier Islands as depicted in **Figure 1**. Proposed acquisition in the south-western corner of the Cartier MC3D MSS survey area will occur at a minimum distance of 6.5 km from the boundary of the Cartier Island Marine Nature Reserve (**Figure 1**). At the closest point, the Cartier West MC3D MSS survey area is located approximately 48 km from the south-eastern boundary of the Ashmore Reef National Nature Reserve, and the Cartier MC3D MSS survey area is located approximately 60 km from the same point.

Water depths across the survey areas range from 10-1,200 m. Survey boundary coordinates are provided in **Tables 1** and **2** below.

Table 1: Boundary coordinates of the Cartier MC3D MSS

Latitude (S)			Longitude (E)		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
12	24	55	124	20	05
12	41	15	124	20	05
12	41	15	124	52	50
12	41	15	123	38	16
12	38	52	123	38	31
12	33	31	123	48	05
12	14	55	123	58	48
12	14	55	124	06	03
11	54	55	124	17	22
11	54	55	124	30	05
12	04	55	124	30	05

GDA94, Map Zone ref. SD 51

Table 2: Boundary coordinates of the Cartier West MC3D MSS

Latitude (S)			Longitude (E)		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
12	52	33	122	26	45
12	46	53	122	24	08
12	37	04	122	46	02
12	42	44	122	48	40

GDA94, Map Zone ref. SD 51

DESCRIPTION OF THE PROPOSED ACTIVITY

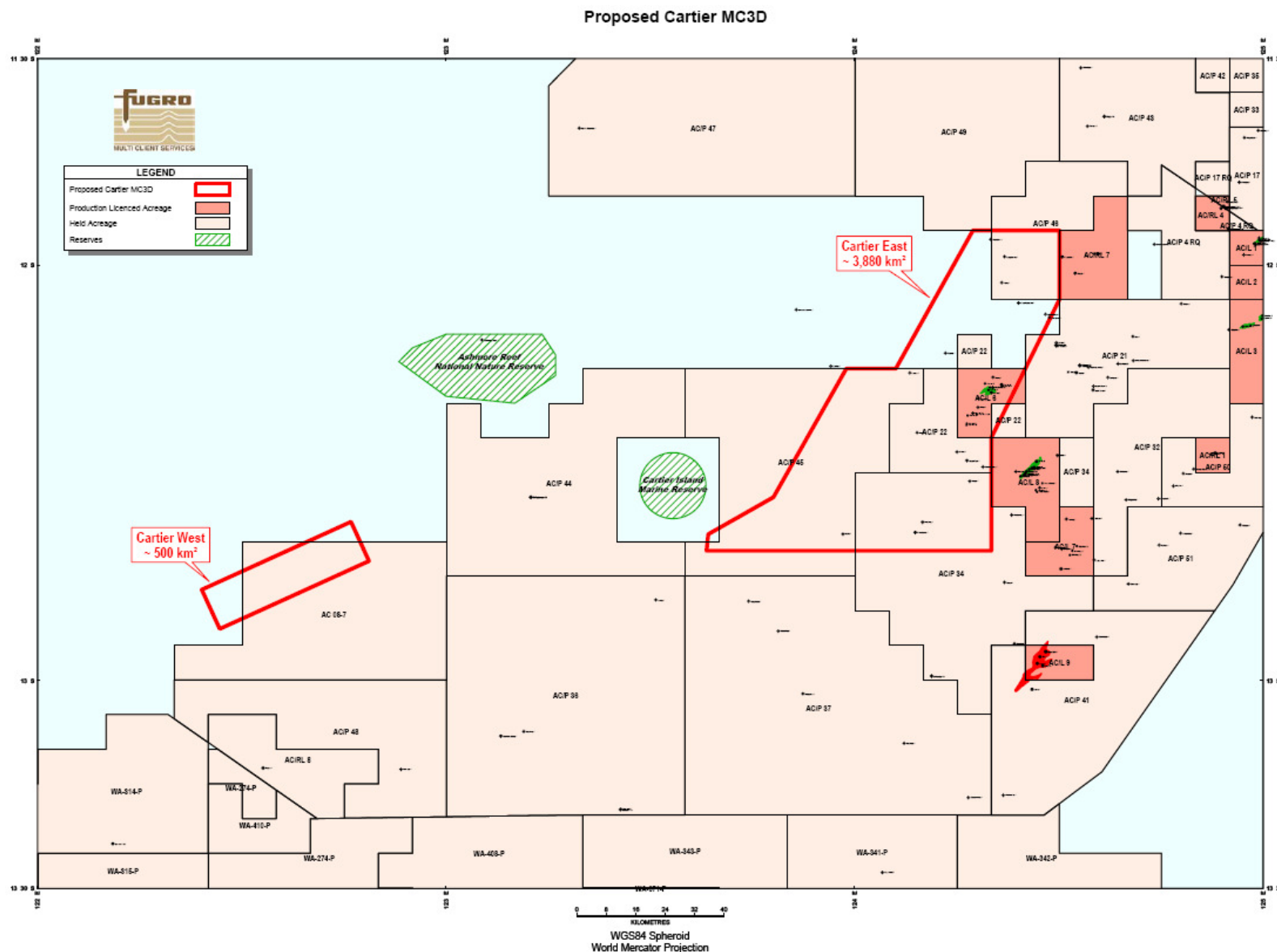
The survey will take place across a water depth range of 10-1,200 m, with the shallowest water depths located over Barracouta Shoal, which is located in the north-western corner of Petroleum Permit Area AC/P34. The surveys are scheduled to commence in mid-August 2009 and are expected to be of approximately 20 weeks duration. The surveys are expected to be completed by the end of December 2009.

During the proposed activities, the survey vessel will traverse a series of pre-determined sail lines within the survey areas at a speed of approximately 8-9 km/hr. As the vessel travels along the survey lines, a series of noise pulses (every 7 seconds) will be directed down through the water column and seabed. The released sound is attenuated and reflected at geological boundaries and the reflected signals are detected using sensitive microphones arranged along a number of hydrophone cables (streamers) towed behind the survey vessel. The reflected sound is then processed to provide information about the structure and composition of geological formations below the seabed in an attempt to identify hydrocarbon reservoirs.

The seismic array will comprise of a maximum of eight solid streamers, with a maximum length of 6 km. Streamer spacing will be 100 m, and line spacing will be 400 m. The source (airgun array) tow depth will be 6 m (+/- 1 m) and the streamer tow depth will be 7 m (+/- 1 m). The operating pressure for the airgun array will be approximately 2,000 psi. The airgun array will consist of two sub-arrays, each with a maximum volume of 3,200 cui. These sub-arrays will be fired alternately, with a shotpoint interval of 18.75 m vertical distance, and will produce at source (i.e. within a few metres of the airguns) received sound energy levels (SELs) in the order of 225 dB re $1\mu\text{Pa}^2 \cdot \text{s}$ at frequencies extending up to approximately 128 Hz.

Fugro proposes to conduct the surveys using the purpose-built seismic survey vessel the M/V *Seisquest*. A support vessel will accompany the seismic survey vessel to maintain a safe distance between the survey array and other vessels, and to manage interactions with fishing and shipping activities, if required. During the surveys, it is likely that the survey vessel will be refuelled at sea using the support vessel, either within or immediately adjacent to the survey areas. At sea refuelling of the *Seisquest* will only take place during daylight hours, and will not take place within a distance of 20 km from the boundaries of both the Ashmore Reef National Nature Reserve and the Cartier Island Marine Reserve.

Figure 1: Location Map - Cartier & Cartier West MC3D Marine Seismic Surveys



DESCRIPTION OF THE RECEIVING ENVIRONMENT

The proposed Cartier & Cartier West MC3D survey areas lie entirely in Commonwealth marine waters in the Kimberley sub-system of the North-west Marine Region (NWMR), which extends from the southern boundary west of Broome to the northern edge of the Exmouth Plateau. Mid-shelf waters (100-500 m water depths) of the Kimberley sub-system consist of submerged reef platforms and mounds that support a diverse array of biological habitats, including coral reefs.

Physical Environment

South-east trade winds are prevalent from April to September, and are usually associated with fine dry weather. They produce a large swell that affects the southern side of most reefs in the area, producing consolidated crustose coralline algae and limestone substrates on the reef slope to depths characteristic of outer reefs or oceanic atolls. During April to September, the predominant direction of the ocean current is west-southwest. In the monsoon season (December to March), when winds come from the north-west or west, the direction of the ocean current reverses, becoming east-northeast. The NWMR's large-scale surface currents are subject to strong seasonal variations, largely due to annual variation in the alongshore pressure gradient that is the main driver of the Region's surface currents. The South Equatorial Current and Eastern Gyral Current intensify during July-September. Similarly, the Leeuwin Current is strongest in autumn, and diminishes during the North-west Monsoon (December-March).

The Kimberley system is also subject to episodic offshore cyclonic activity in the period December to April. Cyclones tend to generate offshore and move south, rarely crossing the coast until they reach the Pilbara region. They can contribute to mixing of water layers as well as play an important role in the dispersal of sediments and species

The seafloor across the NWMR is distinguished by a range of topographic features such as canyons, plateaux, terraces, ridges, reefs, and banks and shoals. The slope is relatively flat, but includes a number of large canyon heads that were probably excavated during and after continental break-up by sediment and water movements. The slope is relatively flat, but includes a number of large canyon heads that were probably excavated during and after continental break-up by sediment and water movements. Reefs in this sub-system include the coral atoll reefs of Scott and Seringapatam, which occur on large mounts rising from deep water (500-1,500 m depth), and Ashmore Reef, which is a platform reef rising from shallower waters (100-200 m depth).

The survey areas include Barracouta Shoal, which rises from a depth of 50 to 10 m. No specific data are available on the benthic habitats and communities of the shallow waters of the Barracouta Shoal, but they are likely to be similar to other nearby shoals in this deep water environment. There are a number of shoals located to the south and south-east of the Cartier MC3D survey area. Similarly, to the north of the survey area there are a number of shallow water shoals and banks. The closest of these are the Sahul Banks, which are located between 12.5 km and 68 km from the northern boundary of the Cartier MC3D survey area.

Biological Environment

Overall, the Kimberley sub-system of the NWMR is thought to have low productivity, largely due to the influence of the Indonesian Throughflow and hence the chlorophyll maximum is too deep to facilitate high primary production on a regular basis. Productivity would be associated with ephemeral events, such as topographically induced water movement around geomorphic features (i.e. coral reefs, canyon heads), therefore causing some mixing of the water column. It has been suggested that eddies may form on the inshore side of the emergent reefs and islands in this sub-system and therefore could be an important mechanism for mixing the water column and thereby stimulating primary production.

Benthic Habitats

Generally, the granitic substrate throughout the Kimberley sub-system is hard and rough due to its erosion resistance and provides a diversity of habitats for benthic flora and fauna. Much of the outer mid-shelf is covered by a relatively featureless, sandy-mud seabed with a sparse covering of sessile organisms dominated by filter-feeding heterotrophs such as gorgonians, sponges, soft corals, echinoderms and detritus-feeding crabs and echinoderms. This is especially true of the non-trawled areas in the deeper water,

and the soft-bottomed rises. However, the many limestone banks are likely to be a key ecological feature of this region. They have a harder substrate and are likely to support a more diverse range of sessile benthos such as hard and soft corals, gorgonians, encrusting sponges and macroalgae; and consequently, a more reef-associated fish and elasmobranch fauna. The mid-shelf banks of the NWMR are poorly understood. However, they are likely to support a unique and diverse invertebrate and fish fauna, with communities that change significantly with depth along their slopes.

Whale Sharks

The whale shark is listed as threatened and migratory under the EPBC Act. Although there are no records of the whale shark's presence in the survey areas there have been sightings near Ashmore Reef and they are known to occur in both tropical and temperate waters and are normally oceanic and cosmopolitan in their distribution. Whale sharks are known to aggregate in the vicinity of Ningaloo Reef during autumn, which is approximately 1,300 km from the survey areas.

Marine Turtles

Five marine turtle species may occur in the survey areas and adjacent waters - the green turtle, leatherback turtle, hawksbill turtle, loggerhead turtle, and the flatback turtle. It is unlikely that marine turtles will be encountered during the seismic acquisition throughout most of the survey areas, given the water depths and lack of shallow submerged features. However, there is a possibility that green, hawksbill and loggerhead turtles may be encountered around Barracouta Shoal, which may represent feeding habitat for these species, and also in the south-west corner of the Cartier MC3D survey area, given the proximity to Cartier Island. Ashmore Reef and Cartier Island represent a critical nesting and inter-nesting habitat for green turtles, supporting one of three genetically distinct breeding populations in the NWMR. A low level of nesting activity of loggerhead turtles has also been recorded in the area. Ashmore Reef and Cartier Island also supports large and significant feeding populations of green, hawksbill and loggerhead turtles. It is estimated that approximately 11,000 marine turtles feed in the area throughout the year.

Dugong

In the Kimberley sub-system of the NWMR, dugong are believed to be confined to the Inshore/Inner Shelf Turbid Zone, which extends from the coast to between the 50 and 100 m depth contours. Within this zone, dugongs and seagrass communities are widely distributed, but most are located in State waters, well inshore of the proposed survey areas. Ashmore Reef is thought to support a small (less than 50 animals) but genetically distinct population of dugong. The Sahul Banks could constitute a feeding habitat for dugong.

Whales and Dolphins

Although whales and dolphins are not expected to be common inhabitants of the survey areas, a number of cetacean species have broad distributions that may include the NWMR. The humpback whale is the most commonly sighted whale in north Western Australian waters. The species has been observed seasonally to complete their northern migration in the Camden Sound area of the west Kimberley, approximately 250 km from the survey areas, after feeding in Antarctic waters during the summer months. It is likely that the whales follow a predictable migratory path and migrate both north and south within the continental shelf boundary (200 m bathymetry). However, on the southbound migration it is likely that most individuals, and particularly cow/calf pairs, will stay closer to the coast than the northern migratory path. In the Kimberley, humpback whales are seen regularly in coastal waters and out to 50 km offshore from Camden Sound to Joseph Bonaparte Gulf during winter months. As the Group IV humpback whale population continues to recover from whaling, the core calving grounds in the Kimberley (Beagle Bay to Adele Island to Kuri Bay to Montgomery Reef to Cape Leveque - high density areas for calving humpback whales during July-November) will continue to expand as animals seek other areas for calving and breeding.

The blue whale may be present in the survey areas and surrounding waters. The blue whale is rarely present in large numbers outside recognised aggregation areas. Blue whales are believed to calve in tropical waters in winter and births peak in May to June, however the exact breeding grounds of this species are unknown. The survey areas and adjacent waters does not include any known blue whale feeding, breeding or resting areas. In the NWMR pygmy blue whales migrate along the 500 m to 1,000 m depth contour on the edge of the slope, and are likely to be feeding on ephemeral krill aggregations. The northward component of this migration takes place from May to mid-August, with a peak in July-August, and the

southward component occurs from late October to November-December, with a few isolated individuals moving south in January. The migration appears to be centred on the 500 m depth contour. Recent acoustic evidence suggests that blue whales move between Scott Reef and Browse Island during July (moving north) and again in October/November (moving south). Consequently, migrating (and possibly feeding) blue whales can be expected to be encountered in the survey areas and adjacent waters during the proposed survey period (August to December).

Offshore waters of the NWMR once supported substantial populations of sperm whales. The presence of sperm whales as evidenced by 19th Century whaling industry data suggests occasional bursts in production, which may be associated with variations in slope (such as canyon heads) and may support species at a number of trophic levels. The old sperm whaling grounds lie to the north and west of Scott Reef. Other species whose broad distributions cover the region include whales that are infrequently observed usually restricted to cooler or deeper waters (e.g. killer and Bryde's whales) and are unlikely to be encountered in the area during the surveys in significant numbers. There are no known breeding, calving or feeding grounds for any listed threatened or migratory whale species within, or in the immediate vicinity of the survey areas.

Seabirds

Ashmore Reef and Cartier Island are important staging areas for many migratory shorebirds. These islands support some of the most important seabird colonies on the North West Shelf including colonies of bridled terns, common noddies, brown boobies, eastern reef egrets, frigatebirds, tropicbirds, red-footed boobies, roseate terns, and lesser crested terns.

Socio-Economic Environment

Heritage Values

There are no marine protected areas within the survey areas. The nearest areas of high conservation significance are the Ashmore Reef National Nature Reserve, located approximately 60 km north-west of the south-west corner the Cartier MC3D survey area, and 48 km north-east of the north-east corner the Cartier West MC3D survey area, and the Cartier Island Marine Reserve, located approximately 6.5 km north-west of the south-west corner the Cartier MC3D survey area.

In its entirety, Ashmore Reef is declared a National Nature Reserve based on its significance as a major province of Western Australia coral reef. It also provides an important habitat for migratory seabirds, and a feeding and breeding habitat for marine turtles. Ashmore Reef located in the Timor Sea is approximately 610 km north of Broome offshore Western Australia and some 840 km west of Darwin. The reef covers an area of 150 km² containing lagoons, intertidal flats, sandbanks and limestone platform and vegetated sandy cays.

Cartier Island is an unvegetated 44.5 ha sand cay surrounded by a wide platform and fringing coral reef. located 350 km off Western Australia's Kimberley coast. Cartier Island Marine Nature Reserve comprises a reef system and its surrounding waters and covers an area within a four nautical mile radius of the centre of the island. The reserve is categorised as an IUCN (International Union for the Conservation of Nature) Category 1A protected area.

There are no known shipwrecks within the survey areas. The nearest historic shipwreck (listed on the National Shipwrecks Database) to the survey areas is that of the *Ann Millicent*, which is located on the reef edge to the south of Cartier Island. The wreck site is located approximately 12 km from the south-west corner of the survey areas.

Cultural Values

It is considered highly unlikely that any items of Aboriginal cultural significance are located in the proposed Cartier & Cartier West MC3D MSS areas. There are no known indigenous cultural heritage values or issues for the waters and seafloor within and immediately adjacent to the survey areas. Similarly, there are no Native Title claims or issues covering the waters and seafloor within and immediately adjacent to the Cartier & Cartier West MC3D MSS areas.

Commercial Fisheries

The principal commercial fisheries in the NWMR focus on tropical finfish, particularly the high-value emperors, snappers and cods which are taken by the Northern Demersal trap fisheries. Commercial fisheries that can operate in the region include:

- the Northern Demersal Scalefish Managed Fishery;
- the Northern Shark Fishery;
- the North West Slope Trawl Fishery;
- the Western Skipjack Fishery;
- the Southern Bluefin Tuna Fishery; and
- the Western Tuna and Billfish Fishery.

These are generally small, non-intensive fisheries that have very limited activity in the Territory of Ashmore Cartier Islands and unlikely to be impacted by the proposed surveys.

Traditional Fisheries

Indonesian fishermen have visited the north-western Australian coast and around the islands and reefs of this coastline for almost three centuries, focusing their fishing effort on a range of species, including: beche-de-mer (trepanng or sea cucumber); various molluscs, particularly trochus shell and clams; seabirds (particularly frigate birds) and eggs; sharks; and marine turtles.

In November 1974, traditional Indonesian fishing practices - referring exclusively to non-motorised sailing craft, were permitted in the region and formalised under a Memorandum of Understanding (MOU) between the Governments of Australia and Indonesia. This MOU covers Scott Reef, Seringapatam Reef, Browse Island, Ashmore Reef and Cartier Island (the MOU 74 Box). The south-western corner of the proposed Cartier MC3D survey area extends into the north-eastern corner of the MOU 74 Box, just to the south-east of Cartier Island. The Cartier West MC3D survey area is located within the MOU 74 Box.

The MOU 74 Box is an area of approximately 50,000 km² within the Australian Fishing Zone where Indonesian traditional fishermen are allowed to fish under the provision of the MOU that recognised the long history of traditional Indonesian fishers, enabling them to continue their customary practices and target species such as trepanng, trochus, abalone and sponges. As a result, Indonesian fishing vessels may move through waters adjacent to the survey areas, although traditional fishing is predominantly around the shoals. Fishing effort is difficult to estimate.

Shipping

No defined commercial shipping lanes exist in the area covered by the proposed surveys, or in adjacent waters. The major commercial shipping route through the Timor Sea passes well to the west of Ashmore Reef and the survey areas. Vessel movements closer to the survey areas include those of the 70,000+ and 90,000 DWT tankers servicing the Jabiru/Challis oilfields and smaller refined product carriers and coastal ships servicing Western Australian and Northern Territory ports.

Oil and Gas Industry

The Territory of Ashmore and Cartier Islands Offshore Area covers 77,187 km². The Northern Territory Government (DRDPFR) administers this area on behalf of the Commonwealth. This area is a well known, prosperous oil and gas province, comprising 20 exploration permits, six retention leases and seven production licences. Three Floating Production, Storage and Offloading Facilities (FPSOs) are actively operating and receiving oil from four fully-developed oil fields within three production licences, comprising all of the Territory's offshore oil production.

MAJOR ENVIRONMENTAL HAZARDS AND CONTROLS

All aspects of the Cartier & Cartier West MC3D MSS have been subjected to risk analysis, which has been used to evaluate the potential environmental risks and effects, and characterize risk likelihood and severity. **Table 3** summarises the risk analysis for the key aspects of the surveys.

Given the distance offshore, the water depths, and the absence of sensitive environmental resources within or immediately adjacent to the survey areas, and the management requirements for all environmental aspects of operations, the risk of significant adverse environmental effects from the proposed Cartier & Cartier West MC3D MSS is low. The implementation of specific whale monitoring and encounter procedures will be used to minimise the potential for any adverse effects to whales. These procedures comply fully with the Australian Commonwealth Government Guidelines: *EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales* (September 2008). A dedicated, expert Marine Mammal Observer (MMO) will be aboard the survey vessel for the entire duration of the Cartier & Cartier West MC3D surveys. The key role of the MMO will be to visually monitor the waters around the survey vessel for the presence of cetaceans during daylight hours. The MMO will be responsible for recording any cetacean sightings during the survey on the appropriate sightings forms, using the 'Cetacean Sightings Application' software.

The majority of the survey areas are in deep waters away from any shallow water habitat areas known to be important for turtle feeding and breeding. To minimise any potential disturbance to green turtles during the peak nesting period, no seismic acquisition will take place within a 20 km radius of Cartier Island, (as defined by 0 metres lowest astronomical tide [LAT]), between December and January inclusive.

The surveys are unlikely to have any significant effects on benthic communities due to the water depths across most of the survey areas. The survey areas include only one shallow shoal area – Barracouta Shoal – and minimum water depths over the top of this shoal are 10 m. The survey sail lines will not pass directly over the top of Barracouta Shoal – from a safety perspective, a minimum water depth of 15 m LAT is required between the towed airgun and streamer arrays and the seabed. Acquisition in these shallow areas will only occur during periods of high tides. Anchoring of the survey or support vessel will only occur in emergency circumstances and both vessels are fitted with highly sophisticated position fixing equipment.

At sea refuelling of the survey vessel will only take place during daylight hours, and will not take place within a distance of 20 km from the boundaries of both the Ashmore Reef National Nature Reserve and the Cartier Island Marine Reserve.

MANAGEMENT APPROACH

The environmental management approaches relevant to key aspects of the Cartier & Cartier West MC3D MSS are summarised in **Table 3**. The surveys will be conducted in accordance with all legislative and regulatory requirements, to the satisfaction of the Designated Authority (DRDPIFR). Fugro's overall environmental objective for the programme is to avoid or minimise environmental risks to levels as low as reasonably practicable (ALARP).

Table 3: Summary of Environmental Risks and Management Approach for Key Aspects of the Cartier & Cartier West MC3D MSS

Hazard/ Incident	Potential Hazard Consequence	Risk and Management Approach
Disturbance to marine fauna	<p>Whales - behavioural reactions (avoidance, diving, increased dive times).</p> <p>Disturbance to marine turtles.</p> <p>Disturbance to seabirds.</p>	<p>Low (turtles, seabirds), medium (fish) or high (baleen whales) risk.</p> <ul style="list-style-type: none"> • Interaction procedures in place and adhered to • Observation zone of 3 km radius, low power zone of 2 km radius, shut-down zone of 500 m radius • 'Soft start' procedures • Use of an MMO • Cetacean sighting reports completed and returned to Fugro and to the Australian Marine Mammal Centre at the Australian Antarctic Division, using the 'Cetacean Sightings Application' software • Between December and January inclusive, no seismic acquisition will take place within a 20 km radius of Cartier Island (as defined by 0 metres lowest astronomical tide [LAT])
Disturbance to benthic habitats	Small localised disturbance to epibiota in event of loss of equipment	<p>Low risk.</p> <ul style="list-style-type: none"> • Seismic survey lines are in deep waters of the continental shelf and slope (10-1,200 m) • The survey areas include only one shallow shoal area – Barracouta Shoal. Minimum water depths over the top of this shoal are 10 m • The survey vessel will not pass directly over the shallow water areas (<15 m LAT water depth) of Barracouta Shoal • Acquisition in these shallow areas will only occur during periods of high tides • No anchoring of the vessel will take place during the survey unless in an emergency • All reasonable efforts taken to retrieve lost equipment • Recording and reporting of all items lost overboard
Interference with commercial and traditional Indonesian fisheries	<p>Interference to commercial and traditional fishing vessels operating within or near the survey areas and surrounding waters.</p> <p>Potential direct and indirect noise impacts on target species.</p> <p>Restriction of access to fishing grounds, loss or damage to fishing gear.</p>	<p>Low risk.</p> <ul style="list-style-type: none"> • Consultation with fisheries management agencies, fishing industry bodies and individual companies prior to survey commencing, to inform them about the location of survey area and timing of operations • Display of appropriate navigational beacons and lights, radar watch • Recording of sightings of fishing vessels, consultation with fishermen at sea, if necessary • Operations carried out in a manner that does not interfere with fishing to a greater extent than is necessary
Interference with shipping activities	Interference to commercial shipping operating within or near the survey areas and surrounding waters.	<p>Low risk.</p> <ul style="list-style-type: none"> • Issuance of Notice to Mariners

Hazard/ Incident	Potential Hazard Consequence	Risk and Management Approach
		<ul style="list-style-type: none"> • Display of appropriate navigational beacons and lights, radar watch • Radio warnings to shipping, as required • Operations carried out in a manner that does not interfere with navigation to a greater extent than is necessary
Waste disposal	Localised temporary decrease in ambient water quality from discharge of sewage, grey water, putrescible waste, chemicals and solid and hazardous wastes.	<p>Medium risk.</p> <ul style="list-style-type: none"> • Procedures comply with MARPOL requirements • Procedures for treatment and disposal of sewage are in place and relevant discharge requirements are adhered to • Sewage treatment system operational and includes maceration and disinfection • Sewage not discharged within 12 nautical miles of the coastline unless vessel has a certified approved sewage treatment plant in place, in which case, sewage must not be discharged within four nautical miles of land • Quantities of treated sewage and putrescible wastes discharged overboard are recorded on the vessel's <i>Waste Log Forms</i> • Correct segregation of solid and hazardous wastes • A vessel <i>Waste Log Form</i> is kept detailing quantities of wastes transported ashore
Fuel and oil spills	Acute toxicity effects on marine fauna such as marine turtles, fishes and seabirds.	<p>High risk.</p> <ul style="list-style-type: none"> • Procedures comply with MARPOL 73/78 requirements (e.g. <i>Oil Record Book</i> kept up to date) • Fuel spill contingency procedures are in place and operational • Adherence to the at sea refuelling procedures • Designated containment areas onboard the vessel for storage of oils, greases and streamer fluid • Sufficient spill response equipment on board to respond to foreseeable spill events • Appropriate actions are taken to minimise pollution • Any significant spills (>80 L) are reported to the relevant sections within DRDPFR • Personnel responsibilities are clearly identified
Introduction of marine pests	Introduction and establishment of non-indigenous (i.e. foreign) marine species with consequent impacts on benthic communities, fisheries etc.	<p>Low risk.</p> <ul style="list-style-type: none"> • Procedures comply with AQIS <i>Australian Ballast Water Management Requirements</i> • AQIS ballast water log is kept up to date • Recent hull inspections of survey and support vessels, and AQIS clearances to operate unrestricted in Australian waters



CONSULTATIONS

Consultation regarding the proposed Cartier & Cartier West MC3D MSS has been undertaken with stakeholder groups, including a number within the commercial fishing industry, in Western Australia. The following organisations have been contacted and informed of the proposed operations:

- Australian Maritime Safety Authority (AMSA)
- Australian Fisheries Management Authority (AFMA)
- Western Australian Department of Fisheries, (DoF)
- Western Australian Northern Trawl Owners Association (WANTOA)
- Northern Fishing Companies Association (NFCA)
- Commonwealth Fisheries Association (CFA)
- Western Australian Fishing Industry Council (WAFIC)
- Austral Fisheries Pty Ltd
- TunaWest
- A Raptis and Sons

Commercial fishing activity is believed to be minimal in the survey areas and surrounding waters. To date none of the fisheries stakeholders consulted has raised any issues or concerns relating to the proposed Cartier & Cartier West MC3D MSS. Consultation with all of the stakeholders listed above, plus any others identified during the consultation process, will continue during and after the surveys, if necessary.

FURTHER DETAILS

For further information about the proposed Fugro Cartier & Cartier West MC3D MSS within the Bonaparte Basin offshore from Western Australia, please contact:

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