Australian Government
Department of the Environment, Water, Heritage and the Arts

# Montara well release: preliminary environmental impact and wildlife response strategy for Ashmore Reef National Nature Reserve and Cartier Island Marine Reserve within Commonwealth waters.

As the appointed Environmental and Scientific Coordinator, under the National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances (National Plan), for the Montara well release incident the Department of the Environment, Water, Heritage and the Arts is responsible for response and rehabilitation of wildlife found affected by oil in Commonwealth waters.

## SITUATION

Ashmore and Cartier are situated where the biogeographical regions of Australia and South-east Asia intersect to produce outstanding conservation values. They are regarded as biodiversity hotspots supporting a diverse array of terrestrial and marine species, in particular significant communities of sea snakes, dugongs, reef building corals, fish and other marine invertebrate fauna. Ashmore and Cartier also provide important seabird and marine turtle nesting sites and provide staging points and feeding areas for large populations of migratory shorebirds. In recognition of the international importance of Ashmore in relation to its biodiversity, Ashmore was declared a Ramsar Wetland of International Significance in 2003.

On 21 August 2009 the West Atlas drill rig, located in the Montara oil field, suffered a well head accident at the seabed resulting in an uncontrolled and continuing discharge of light crude oil. AMSA is coordinating the emergency spill response in accordance with the National Plan.

Modelling indicates that oiling may occur on Ashmore and Cartier. To date although no oil has reached the reserves oil residue in the form of oil sheen has been reported at Ashmore and Cartier.

This strategy has been developed to deal with a scenario where negative impacts of the well release are noticeable within the Ashmore Reef National Nature Reserve and/or Cartier Island Marine Reserve and on wildlife found within the Commonwealth areas impacted by the oil spill.

Negative impacts could be recorded in a number of ways, but according to current intelligence at this stage it is likely to come in three forms;

- As tarballs in low quantities but with repeated impacts (at low intensity),
- As a light oil in the form of “sheen”, and
- As impacts on wildlife

These impacts are likely to occur over a period of days to weeks.

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Tarballs have low toxicity and would strand within the intertidal zone on the islands. This would include beaches, any tidal flats and fringing reefs. Detection may be difficult depending on the colour of the oil and more so if tarballs are concealed due to sand shift.

Light oil 'sheen' will also be difficult to detect once it is deposited within the intertidal zone and could pose a greater threat to ecological processes than tarballs. Oil sheen may be toxic to benthic organisms and will have a negative impact on marine wildlife, particularly birds.

Birds are often susceptible to oil spills, because they do not show instinctive avoidance behaviour. Research suggests that whales and other cetaceans generally avoid oil spills; however cetaceans and other animals that surface to breathe (including turtles and sea snakes) may suffer impacts to their eyes, airways or lungs. It is also possible that these animals could be affected by the oil through contamination of their food supply. While cetaceans' thick skin protects them from serious harm it is possible that reptiles may be affected by oil absorption through their skin, pores or via ingestion.

**ENVIRONMENTAL SITUATION**

The rig is about 57 and 80 nautical miles from Cartier Island Marine Reserve and Ashmore Reef National Nature Reserve respectively. Cartier contains one unvegetated sand cay and a mature reef flat with two shallow pools immediately to the north-east of the cay. Ashmore contains two extensive lagoons, mobile channelled carbonate sand flats, shifting sand cays, an extensive reef flat and three vegetated islands, East, Middle and West Islands. The two lagoons have four northern entrances and extensive coral growth. The beaches around each of the three islands at Ashmore are coral rubble. Particle size is generally gravel to pebble in size.

Approximately 275 species of corals have been recorded at Ashmore and Cartier. The relative abundance of different genera vary significantly between depth zones and among sites; however, shallow reef areas (i.e.- the reef flat and reef crest) are dominated by species belonging to two main genera; *Acropora* and *Seriatopora*. Species belonging to the genera's *Goniopora*, *Montipora*, *Goniastrea* and *Favites* are also common on the shallow parts of the reefs at both reserves. Soft corals are also present at both reserves; however, soft coral cover is highest in deeper parts of the reefs, on the reef slope.

Biodiversity is similar between sites at Cartier whereas at Ashmore there are clear directional trends at different sites. In particular, north Ashmore has the highest coral biodiversity, followed by the southern areas. Biodiversity is lowest at south-west Ashmore and is also low in the lagoon.

Other components of the benthic community on the reef flat and crest at Ashmore and Cartier include turf algae, Halimeda, Coralline algae, sponges and macro-invertebrates.

The region is not known to be a major migratory pathway for large whales; however, smaller cetaceans like dolphins are known to forage in the region throughout the year.

Ashmore and Cartier reserves are important staging points for migratory shorebirds and support large breeding populations of seabirds. Seabirds nest at the reserves throughout the year with some species currently nesting. Individuals from these species dive to shallow

depths, foraging throughout the region. Large flocks of migratory shorebirds gather at Ashmore and Cartier between October and November. Of the species recorded at Ashmore 35 are listed on migratory bird agreements with other countries.

It is thought that Ashmore and Cartier support up to 11,000 marine turtles including feeding Green, Loggerhead and Hawksbill populations throughout the year. The islands also provide critical nesting and inter-nesting habitat for Green turtles whose nesting activity occurs throughout the year peaking around December to January. Therefore, turtle hatchlings can be expected in the region throughout the year with a peak around February to March. Once in the water hatchlings will swim near the surface at $90^{o}$ to the wave fronts until they are clear of inshore waters. Generally, they then disappear into oceanic currents and gyres where they stay until they are large enough to move into developmental habitats.

Ashmore is also well known for its high seasnake diversity and abundance. In the 1990's, Ashmore supported up to 40,000 sea snakes; however, research since 2003 has indicated a steep decline in the abundance and diversity of these species at Ashmore and Cartier.

Tidal ranges exhibit average spring tide maximums of 4.75m. Spring tides will occur on 7 and 20 October and neap tides will occur on 13 and 27 October. Tidal predictions for October are at Attachment A.

**ASSETS**

Current Assignment – Ashmore Reef lagoon

Australian Customs Vessel
6 crew available (dependent on operational priorities) for oil spill clean-up. These crew can assist in basic cleanup operations under the direction of an experienced oil spill clean up officer.
Basic clean-up equipment is available and includes shovels, rakes, sand bags and basic personal protective equipment.

**SHORELINE CLEAN-UP STRATEGY**

Planning assumptions:

a) ACV will be equipped for basic shoreline clean-up operations.
b) Should additional cleanup resources be required during this period, DEWHA will liaise with AMSA to ensure resources (personnel and equipment) are directed to Ashmore and/or Cartier as soon as possible.

1. Daily survey of beaches on all Ashmore Islands to determine if oiling has occurred in previous 24 hour period.

2. Establish photographic monitoring points, from which photos of the shoreline are taken on each patrol, to assist in determining the environmental impacts if oil reaches the islands.

3. If oiling is identified, undertaken a shoreline assessment and report to DEWHA via the DEWHA duty phone on 0419 293 465 and then compile a report to send via email to the DEWHA duty Officer who responds. The incident report should include location, oil distribution and character, a sketch of the area as per the Shoreline Oiling Assessment template plus photos.

4. DEWHA and AMSA Incident Controller to discuss oiling, and provide advice to Customs officer on how/when clean up should commence.

5. Recovery of oiling if situation warrants. Recovery on the beaches of West, Middle and East Islands will be via:

    a. Use of rakes to shift oil into rows.
    b. Use of shovels to lift recovered oil into sand bags.
    c. Care should be taken to minimise sediment removal. If percentage recovered oil to sediment is less than 50% advice should be obtained from AMSA and DEWHA before proceeding further.

6. Recovered oil is to be photographed, recorded and stored on the ACV for return to mainland. AMSA and DEWHA to coordinate disposal on arrival.

7. Care should be taken to minimise transferral of oil from scene to vessels via boots and Clothing. Officers should utilise the personal protective equipment provided by AMSA to reduce the risk of injury from oil/sheen. Officers should not enter the water without full protection to prevent burning of skin.

**OILED WILDLIFE RESPONSE STRATEGY**

If oiled wildlife is found, the following procedures should be followed:

1. Note the time of day, the location the animal was found and the general condition of the animal – how much oil is on it, if movement appears laboured, etc.
2. Identify the animal to species level if possible.
3. Take photographs of all affected wildlife and affected surrounds
4. Note how many other individuals of the same species are in the vicinity (flying, swimming, nesting etc).
5. Contact the DEWHA duty phone for advice on how to handle (0419 293 465) – note that wildlife can be dangerous, particularly if distressed, so no attempt to capture the animal should be made until advised. Anyone handling wildlife should be appropriately trained to do so.
6. Prior to collecting samples of dead wildlife ensure photos of the animal are taken. Where possible take samples for evidence collection purposes noting that samples cannot come in contact with any plastics. Wrap the samples in alfoil and then place in a sealed plastic bag. Samples must then be frozen in a specifically dedicated bio-hazard freezer to maintain their evidence value. Ensure that the location (inc latitude and longitude coordinates), the species name (if known), the date and time, and the contact details for the person who collected the sample are recorded and stored with the sample.
7. All samples (evidence) then need to be managed in line using standard operating procedures with utmost caution.
8. DEWHA to liaise with experts and provide advice as soon as possible to the onsite officers.
9. Waste management guidelines need to be developed specifically for any dead oiled wildlife that require disposal. These need to be undertaken in consultation with Customs and Quarantine to consider their requirements. If the slick continues to move

closer to the Reserves then we are likely to see large numbers of oiled wildlife that will require disposal.

*Specific instructions for oiled birds*

1. If birds can be caught, put in a box big enough to allow bird to fully rotate (but not necessarily stretch wings) – put 20mm diameter (maximum) holes around the box to allow airflow.
2. Box mustn't go in air conditioning – place on rear deck out of the weather.
3. If birds feet feel cold, place warm water in sealed bottle in the box (to act like a water bottle).
4. Contact DEWHA as soon as possible.

CARE OF OILED WILDLIFE

Primary care, triage and rehabilitation for oiled wildlife will be required. This process involves capturing the animal, providing basic onsite care, stabilisation and triage. Animals with a high triage priority will require transfer to the mainland for veterinary treatment. Animals will be sent to the wildlife response centre in Broome for complete washing and rehabilitation before release when the number of wildlife in care reaches a threshold of 25 animals. Until this threshold is met, oiled wildlife will continue to be transferred to Darwin for veterinary treatment.

Experienced wildlife officers are necessary to conduct and oversee collection operations. This activity is beyond the capability and expectations of ACV crews. Consequently, the following steps should only be followed by, or under the supervision, of a trained wildlife response expert:

*Basic on site care*

The oiled wildlife systems and actions established aboard the Customs vessels at Ashmore Reserve by DEWHA in effect are providing remote stabilisation in its simplest form. These actions can only be implemented by suitably experienced and competent staff and are beyond the ability of Customs crews on site. Ongoing arrangements for on site experienced wildlife personnel support are therefore necessary to achieve stabilisation.

Requires AMSA oiled wildlife response kits:

1. Quick wash – to remove the worst of the oil contamination and prevent further skin/feather damage.
2. Treat infections or physical injuries.
3. Provide temperature control, hydration and nutritional requirements.

*Triage Assessment*

There is suitable equipment aboard the Australian Customs Vessel stationed at Ashmore to undertake a full oiled wildlife assessment for each animal. The process does however require an appropriate level of training and confidence to deliver this assessment.

Animals will be assessed by the onsite wildlife response expert after which a decision (based on veterinary advice) will be made to transport the animal to the mainland, to veterinary facilities or to the wildlife response centre in Broome, or to release the animal.

*Transport to mainland*
Animals assessed as high triage priority, as determined by the onsite wildlife response expert in conjunction with veterinary advice, will require transportation to the mainland accompanied by a wildlife response expert to minimise the loss of animals during transport.

*Mainland response centre*
Until the number of birds in care reaches 25, wildlife will be transported from Ashmore as needed and placed in the care of a veterinarian in Darwin. Once the trigger of 25 birds has been reached the response centre established in Broome, will be activated which will allow for complete washing and rehabilitation prior to the animal's release.

POST RESPONSE WILDLIFE RELEASE

1. *Stabilise wildlife from the "Cleaning and Drying" phase*
   This involves providing adequate housing, temperature control, ventilation, fluid therapy, meeting nutritional needs and any other requirements to allow the bird to get over the stress associated with the washing process.

2. *Prepare wildlife for release*
   For all aquatic birds this involves the provision of pools to facilitate the waterproofing process and may take some days. Waterproof management and implementation is a specialised activity and requires specialised support from experienced personnel.

3. *Select wildlife to be released based on protocols*
   Protocols include adequate body weights; good blood values; normal behaviour and waterproof testing (minimum 6 hours for terns, noddys, boobies and most coastal species; true pelagic species will require 24 hour tests).

4. *Release*
   - Arrange for banding/tagging of all wildlife to be released (contact DEWHA for details)
   - Select suitable sites for wildlife release
   - Make arrangements for release of wildlife
   - Transport wildlife to release sites

OILED WILDLIFE PREVENTION

Given the low numbers of oiled wildlife known it is not recommended to initiate 'hazing' practices at this stage. Hazing devices emit a range of different high volume sounds in an attempt to keep wildlife away from the area (some units cover up to 150 hectares). The devices are built to have the similar floating properties as the oil so that they remain with the slick. These devices are constructed in the United States, on request, and cost in the vicinity of $10,000 per unit. The number of units required and the associated timeframe are being investigated.

Ongoing regular monitoring of wildlife at the Ashmore and Cartier Reserves will be conducted to determine when wildlife prevention methods are necessary. This information will then potentially act as a trigger to review, reconsider and possibly implement hazing approaches.