Good news whale tale

Each year numerous whales and dolphins become entangled in rubbish, marine debris and fishing gear. Some of these animals are spared from their inevitable death sentence by expert DBCA crews, who use specially developed tools and techniques. But it's impossible to know how many whales aren't so lucky, and swim around for days, weeks, months or even years, encumbered by the foreign matter they've collected on their annual migration along the Western Australian coast. However, new satellite tags are proving to be a game changer for whale rescue crews, who can now carry out their operations more safely and reliably.

by John Edwards and Rhianna King

As the final rope is cut, and the 30–35-tonne humpback whale shakes off the buoys and fishing rope that it had been entangled in, crew members from DBCA's whale rescue team in the inflatable zodiac erupt in 'whoops' and cheers, and exchange high fives. They are exhausted; the physically demanding, and high-risk operation to free the whale has been going for several hours. But they're buoyed knowing this whale will get a second chance at life; in their eyes, every whale counts.

Unfortunately, the whale suffered while it was entangled. It has sunburn on the top of its back, which indicates it had spent several days at the surface of the water; unable to dive due to its manmade shackles. And the fishing rope has cut through the middle of its fluke and was looped around the peduncle (the part of the whale's body that tapers to the fluke), which has caused severe chafing. In some severe cases these cuts can be so deep they nearly sever the fluke. But this whale is one of the lucky ones; without being freed, it would have succumbed to the same fate as so many others: a slow and painful death. Among the rescue teams, entangled whales are known as 'dead whales swimming'.

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Main Between 40,000 and 90,000 humpback whales pass the Western Australian coast each year.
Photo – Peter Nicholas
Inset left Unfortunately, many whales and dolphins become entangled in fishing gear.
Inset right Crews from DBCA and DPIRD are trained to respond to marine mammal entanglements.

Above Dragging floats, ropes and cray pots can lead to injury and even death.

Right Disentangling large marine mammals can be difficult and dangerous.
Photos – DBCA

ONGOING THREAT

Becoming entangled in fishing gear off the Western Australian coast is an ongoing threat for the tens of thousands of humpback whales that make the journey from the Antarctic to the tropical waters off the west coast each year. About 80 per cent of reported entanglements involve ropes and floats that weigh about four kilograms. But some involve cray pots, which can weigh up to 30 kilograms. The pots in octopus trapline gear when clumped together can weigh hundreds of kilograms.

Under the impetus of the late Doug Coughran, who was a world-renowned expert in this field, staff from DBCA and its predecessors have worked tirelessly with the fishing industry to decrease the potential for whale entanglements, including making modifications to gear and practices. Fishing crews have also been encouraged to report sightings of entangled whales to the department so wildlife rescue crews can be deployed. Through this work, the team has also pioneered and perfected tools and techniques for disentangling whales that have been adopted around the world. There are currently 107 officers throughout the State, including 26 from the Fisheries Division of the Department of Primary Industries and Regional Development (DPIRD), who are trained to respond to large whale disentanglements.

However, despite all this work and allocation of resources, the number of entangled whales that are rescued is frustratingly low. In 2019, DBCA received 23 reports of entangled whales, of which five were completely disentangled and two were partially released. In 2018, 19 were reported and five were freed. And who knows how many others go undetected. Until recently, unless the person who reports the entanglement stays with the whale to provide up-to-date coordinates, there is little chance it will be found again, despite best efforts. And other factors – such as conflicting response crew and equipment availability, and unfavourable sea and weather conditions – reduce these odds even further.

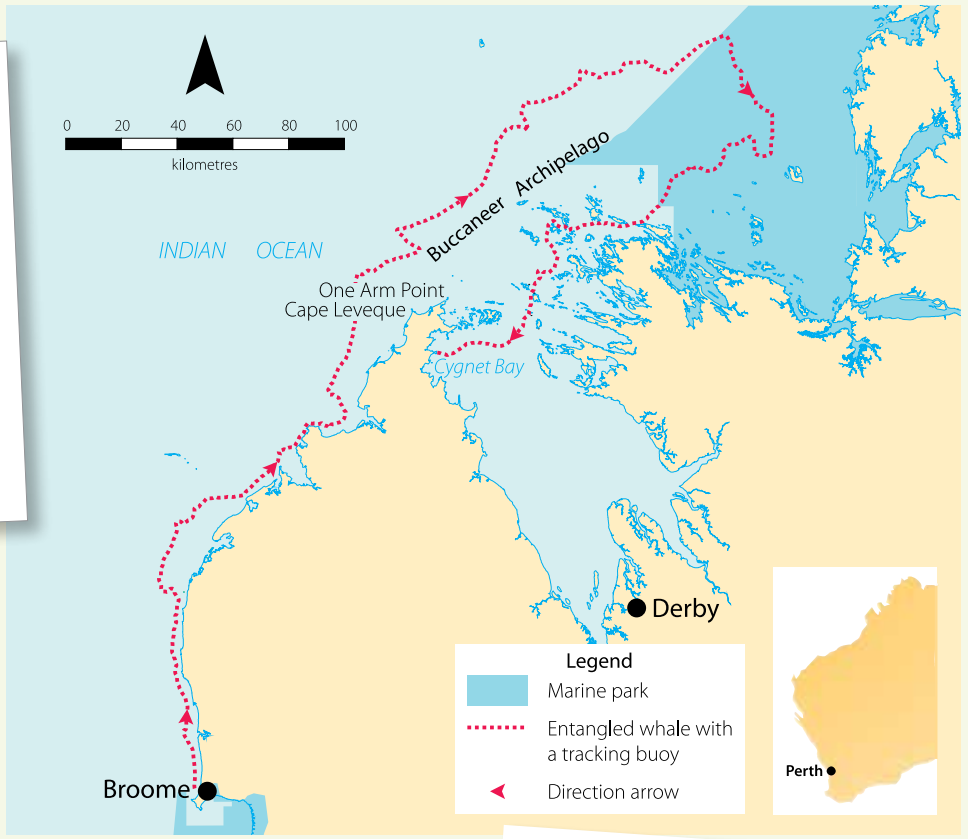
However, a new satellite tag is proving to be a game changer, by enabling crews to track entangled whales so they can be more reliably and safely freed.

Hear more about whale rescues

Scan this QR code or visit Parks and Wildlife Service's *'LANDSCOPE'* playlist on YouTube.

Case in point

When: Sunday 4 August 2019
Where: One nautical mile off Cable Beach, Broome
Individual: Juvenile humpback whale
Conditions: Light seas, no swell, winds five knots from the north-east.
Whale behaviour: Whale was free swimming and demonstrated some moderate behaviour when approached (tail slaps and vocalisation)
Entanglement description: 12-millimetre nylon rope around the peduncle and tail flukes with approximately eight to nine metres of trailing line with two 150-millimetre white floats attached
Reported by: Cameron Birch, Broome Whale Watching



Situation: On Sunday 4 August 2019 at 1400hrs commercial tour operator Cameron Birch of Broome Whale Watching reported an entangled juvenile humpback whale. The company agreed to stay with the whale until a rescue team could be deployed. This was integral to the successful outcome.

A DBCA incident management team attempted to attach a satellite tag to the trailing line, but the whale's evasive behaviour made it difficult for the response crew to get close. Eventually, though, the tag was attached. The crew monitored the whale and photographed the rope formation so they could plan the rescue. However, the whale started to show signs of aggression (growling and 'S' postures) so the crew retreated.

Over the next nine days the whale headed north, and the rescue team made predictions on its route and plans to intercept it. The team made the decision to track the whale further north where adequate resources were available, including the 22-metre DBCA patrol vessel *Worndoom* that was working in the waters north of Cape Leveque in the Buccaneer Archipelago.

On 13 August crews intercepted the whale and gathered data on its condition and the entanglement. The crew planned to attempt a disentanglement from Cygnet Bay, where they had good road and air access and support from the local rangers. However, on the morning of 15 August the satellite tag stopped transmitting and it was suspected that the whale had swum into more gear and become further entangled.

The team travelled to Cygnet Bay but a region-wide phone and internet outage meant the only way to communicate was via VHF radio from vessels and then landline from Cygnet Bay to Broome.

The crew located the whale, which had indeed become tethered to more fishing gear, and reported back to the office. While they were on the radio, a local pearl farm manager overheard the conversation and offered the use of their vessel.

It was decided to 'keg' the whale along the tethered line to keep it from diving away, which involves attaching buoys. This works to tire the whale so crews can more safely access the entanglement. Crews attempted to approach it from behind. However, its behaviour escalated so the team backed off.

The crew tried again, and this time were able to make several cuts to the rope and free the whale.

Outcome: This disentanglement was one of the more challenging cases of the season and involved people from DBCA Parks and Wildlife Service, commercial whale watching industry, DPIRD Fisheries Research Division, traditional owner communities, Border Force, charter aviation companies and the pearling industry. This event demonstrated the value of collaboration between multiple stakeholders and the successful outcomes that are possible when satellite tags are used to monitor entangled whales.

Above Rope and buoys removed from the juvenile humpack whale.
Photo – DBCA

Top Crews board inflatable zodiacs to gain greater access to the entangled whales.

Above The satellite tracker helps staff pinpoint the safest time and location to carry out disentanglements.

Above right Senior marine operations officer John Edwards delivers training to crews around the State.
Photos – DBCA

GAME-CHANGING TECHNOLOGY

The idea for the new technology was conceived in 2016 when DPIRD Fisheries researchers Dr Jason How and Ben Hebiton were in Augusta tagging humpback whales with satellite trackers to monitor their migration route. The team spotted a humpback whale entangled in a web of fishing ropes and floats. Knowing that if they lost track of the whale it would be unlikely to be found again, they channelled their inner 'MacGyver' and used whatever they had available to encase a tracker in a float and attach it to the entanglement so they could monitor the whale's movements. Over a number of weeks, the whale was tracked on its journey from Augusta in the south-west to the Abrolhos islands in the mid-west. Unfortunately, as it travelled north on its migration it headed about 100 nautical miles offshore – too far for DBCA crews to rescue it – but the success of this impromptu trial sowed the seed to develop the concept further.

Back on dry land, and with encouragement from DBCA, Jason and Ben got to work to develop a more robust, purpose-built version. DBCA required 10 tracking buoys, one for each of the trained teams between Esperance and Broome, so together the departments approached the Western Rock Lobster Council for support and secured $20,000 to develop and build the trackers. Based on the success of this initial trial, the council committed a further $10,000 in 2019.

The satellite tracker has evolved from the crudely assembled prototype to a refined robust model that has the capability to be remotely programmed 'on the go', which can increase battery life to provide data for close to six months. It comprises a 35-centimetre-diameter float, which houses the tracking technology and is coated in polyurethane so it can withstand dives of up to 100 metres. It is attached to the entanglement by a 20-metre rope using a carabiner or grapple. The tags have a default setting to 'ping' every 15 minutes, which enables DBCA crews to monitor how fast and in which direction the whale is travelling.

EASY DOES IT

Where possible, whale rescue crews will always attempt to free an entangled whale as soon as it's detected. However, the new tag provides crews with additional time to plan a safe operation. Once the whale is tagged, the team can review weather and sea conditions, and negotiate resource and logistical requirements, without losing track of it. This improves the safety conditions for the crew and the outcomes for the whales.

Since 2018 the satellite trackers have been distributed to crews from Esperance to Broome. They are also attracting the attention from whale disentanglement crews in other parts of the world who are looking to add the tool to their arsenal. And with continued work to reduce the amount of rubbish and fishing gear that is discarded in the ocean, there is reason to be optimistic that the outlook of WA's spectacular marine megafauna is improving.

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