

WHALES AND THE KIMBERLEY COAST

On 1 December 2010, the Kimberley Society heard from **Richard Costin** (whale researcher, naturalist, documentary film maker and photographer) and **Annabelle Sandes** (whale researcher, artist and photographer). For the past five years, this adventurous and dedicated pair have been studying the presence of humpback whales (*Megaptera novaeangliae*) on the Kimberley coast. Operating as [Kimberley Whale Watching](#), they use high definition video, stills cameras, and hydrophones (underwater microphones) to record the behaviour, songs and individual tail fluke markings of these cetaceans. They also record whale statistics, taking particular note of the percentages of cows and calves.

Flown down from Broome to present their richly illustrated talk in Perth, Richard and Annabelle took time out from finalising work on three documents:

1. [2010 Kimberley Cetacean Survey](#);
2. Submission to Marine Policy Branch, Department of Environment and Conservation On The Indicative Management Plan For the proposed Camden Sound Marine Park; and,
3. [Submission to the Chairman of the EPA on the Strategic Assessment Review of the LNG Precinct at James Price Point](#).

Their talk drew on those documents, all three of which went onto their website. The documents contain data, maps and images. A précis of that information follows.

The annual migration

Every year, several thousand Humpback whales migrate to tropical Kimberley waters from freezing Antarctic waters (their summer feeding grounds). The whales, which are part of Western Australia's "Breeding Stock D" population, and thus distinct from those migrating along the east coast, find a tranquil resting, calving and feeding area in the coastal waters between Broome and Camden Sound. Other cetaceans sighted along the coast include Pilot Whales, Pygmy Killer Whales, Killer Whales, Spinner Dolphins, Bottle-nose Dolphins, Dugong and Australian Snub-fin dolphins.

The Breeding Stock D population, which is the largest such population in the world, is thought to number somewhere between 22,000 and 30,000. The migrating whales travel over 6,700 km each way during their incredible trips. Researchers who have monitored the migrations say that the distances travelled can exceed 60km in 24 hours, particularly where adult whales without calves are concerned.

Kimberley Whale Surveys

Some of our knowledge about this humpback whale migration comes from independent surveys conducted by Kimberley Whale Watching in 2008, 2009 and 2010. Those surveys, undertaken between Broome and Camden Sound, were made possible through the generosity of Odyssey Expeditions, the Great Escape Charter Company and Kimberley Quest.

In 2008, *Kimberley Quest 1* was made available for three trips, and MV *Odyssey* was made available for one. The surveys between 27 June and 12 September recorded a total of 358 pods containing 645 whales. Eighty-six of the whales were cows or calves.

In [2009](#), the first of the season's migrating whales were seen on 30 May, 20 nautical miles west of Broome. In July the Wilderness Society chartered the *Odyssey* to carry out one dedicated whale survey trip with Kimberley Whale Watching from Broome to Camden Sound and back to Cape Leveque. During that survey, Kimberley Whale Watching recorded 582 pods, representing 969 whales that included 98 calves. Kimberley Whale Watching conducted a second whale watching trip on the *Odyssey* in September 2009. An aerial survey was conducted on 30 August during the peak migration period to get an indication of the concentration and distribution of humpback whales between Gourdon Bay (south of Broome) and the Lacepede Islands (to the north). In other work done between

16 July and 17 September, Sentosa Charters (Broome) recorded sightings of 270 whales, of which 41 were calves. Significant numbers of the cows and calves were seen in the Broome area, and it appears that Collier Bay is an important resting area for cows and calves. On 19 September, eleven cows with calves were recorded between that bay and the Horizontal Waterfalls. Some mothers with late calves were still in Camden Sound or Collier Bay as late as the first week of October, and others were near Broome.

The 2009 sightings have been plotted on a satellite image that shows the whales close to the coast, especially off Broome (between Gourdon Bay and James Price Point). Concentrations are evident around the Lacepede Islands and in the waters between Koolan Island and Camden Sound.

A second map shows the combined data from the 2009–2010 Kimberley Cetacean Surveys, with the concentrations more noticeable around the Lacepede Islands and extending north-east to Adele Island before swinging in to Camden Sound. That map also identifies the locations of the cow/calf pairs, Bottle-nose Dolphins and Snub-fin dolphins. The latter were most evident in the Prince Regent River.

The maps and survey results record only the concentration and distribution of whales on the survey tracks at the time of survey. They should not be taken as the actual number of individual whales in the area. The recordings of the whales either side of Adele Island in 2010, for example, reflected the findings of an extended whales and reefs expedition that was undertaken between 16 and 23 August. It tested the extent of the calving and feeding area between Camden Sound and Adele Island and between Adele Island and the Lacepede Islands. Kimberley Whale Watching collaborated with the Wilderness Society on that survey, which recorded a total of 455 whales, including 21 calves. The highest concentration of whales – 126 pods (198 whales, including 7 calves) over an 11-hour period – was seen through the outer shoals between Adele Island and the Lacepede Islands.

The 2010 surveys were similar in design to those of 2009 but were done with the aim of comparing abundance and distribution of the whales within state waters between Broome, the proposed industrial precinct at James Price Point, Pender Bay (north of Beagle Bay), and Camden Sound. Between Broome and the Lacepede Islands, one survey from 27 June to 28 August recorded 167 pods (268 adults, 13 cows and 13 calves). Sightings over a similar period in Camden sound recorded 80 pods (144 adults, 5 cows and 5 calves). In total, the 2010 surveys, which included a spot aerial survey on 5 September, recorded 558 pods (846 adults, 48 cows and 49 calves). Other sightings at Eco Beach recorded 81 pods (148 adults, 20 cows and 20 calves).

In 2010, the first whales reported on the Kimberley coast were spotted at Talboys Rock (north of James Price Point) on 24 May. Seven months later, in the middle of December, whales were still being sighted off flat rocks near James Price Point. During the peak migration period, the highest whale concentrations were recorded between Adele Island and the Lacepede Islands (18 whales per hour), between the Lacepede Islands and Broome (15.85 whales per hour), and in Camden Sound (13.2 whales per hour). The percentage of calves in the population was highest between the Lacepede Islands and Broome (8.1%) but the 2010 surveys recorded only half the number of calves recorded in 2009. This was partly due to a smaller sample size in 2010 and a shorter survey period, which did not include the September period when the percentage of cows and calves in the population would have been higher. The lower percentage of calves is nonetheless seen to raise concerns over the status of the Breeding Stock D population of humpback whales.

Feeding behaviour

The feeding behaviour of humpback whales in the Kimberley is still poorly understood but anecdotal reports from several local sources have confirmed that the whales are feeding there. They have been observed skim feeding, lunge feeding and herding baitfish along

fringing reefs and headlands. They are known to be opportunistic feeders that may target baitfish along the Western Australian coast. In the 2009 and 2010 surveys, high concentrations of baitfish were seen in areas where high concentrations of whales were recorded. Personal observations over the past ten years along the Kimberley Coast have convinced Richard and Annabelle that the productive tidal zone in inshore waters is also an important feeding area for Breeding Stock D humpback whales. They surmise that the availability of suitable prey in the Kimberley for opportunity feeding may have contributed to a reported 10-12% increase in this population over the past 10 years.

Opportunity feeding has also been observed off Eden on the south coast of NSW. Research into the feeding behaviour and feeding ecology of humpback whales in southern NSW is currently being researched by Dr. Rebecca Dunlop and Dr. Michael Noad from the University of Queensland.

The relative importance of coastal feeding areas may increase if there is a further decline in the krill biomass to critical levels in the Southern Ocean. The extent of the krill decline is not adequately defined or understood but scientists are concerned about it. Quotas on the harvesting of krill came into effect in 1992 as part of the Antarctic treaty system, with the annual catch averaging between 100,000 and 125,000 tonnes since then. A record catch of just over 211,000 tonnes forced the closure of the fishery near the Antarctic Peninsula on 10 October 2010. With these krill thought to be the main feed source for the Breeding Stock D, their abundance and availability seems critical to the whales' survival both in the Southern Ocean and on the long migration to the Kimberley coast. The mortality rate of the Breeding Stock D is inherently difficult to determine but Richard and Annabelle believe that a recent spike in reported deaths and strandings is cause for concern.

Status of the population

The conservation classification of the humpback whale is as follows:

- [Environment Protection and Biodiversity Conservation Act 1999](#) (Australian Government): Vulnerable to Extinction
- [Wildlife Conservation Act 1950](#) (Western Australian Government): Vulnerable to Extinction
- [IUCN Red List of Threatened Species](#) (Global): Least Concern

The recognition of the whales' vulnerability under the *EPBC Act 1999* led to the National Heritage Trust implementing the [Humpback Whale Recovery Plan 2005 – 2010](#). That plan incorporates an undertaking to protect habitat critical to the survival of the whales, e.g. ecosystem processes on which the whales rely and areas known to seasonally support significant aggregations of whales. Known calving, resting and feeding areas and certain sections of the migratory pathways are seen as important. Currently known calving areas identified by the National Heritage Trust include the Southern Kimberley between Broome and the northern end of Camden Sound. The importance of Kimberley waters as a calving, resting and feeding area needs further research.

Protecting the whales from threats

The proposed Industrial Precinct at James Price Point is being assessed under Section 146 of the *EPBC Act 1999*. Part of that section requires that "The Minister must not act inconsistently with ... (b) A recovery plan for the species or community or threat abatement plan".

The potential threats to humpback whales need to be considered in a broad context. That context embraces the range of threats that the whales face from Southern Ocean fishing, mortality events during their migration along the Western Australian coast, and the cumulative impacts of a massive increase in the development of the offshore oil and gas industry along the northwest coast.

Richard and Annabelle believe that the Western Australian Government and the Federal Government should be adopting a precautionary approach to protecting critical habitat in known baitfish and whale aggregation areas along the Kimberley coast. They note that the area between Broome and the Lacepede Islands has been recognized as one of the biodiversity hotspots in the NW Marine Bioregion in both state and federal waters. Humpback whales have been observed feeding around Boileau Patches, Grey Shoals and Talboys Rock, all of which fall within the zone of influence for the proposed heavy industrial precinct for James Price Point.

The *Humpback Whale Recovery Plan 2005 – 2010* states that:

Humpback whales use habitat seasonally and can typically be found along various parts of the Australian coastline for up to nine months of the year (April to December). Anthropogenic activities have the potential to degrade habitat important to the species. These activities may degrade habitat by operating at times that coincide with the presence of whales, or they may occur when whales are absent, but degrade habitat suitability on a permanent or semi-permanent basis.

These activities may include:

- acoustic pollution (e.g. commercial and recreational vessel noise, and seismic survey activity);
- entanglement (e.g. in marine debris, fishing and aquaculture equipment);
- physical injury and death from ship strike;
- built structures that impact on habitat availability and/or use (e.g. marinas, wharves, aquaculture installations, mining or drilling infrastructure);
- changing water quality and pollution (e.g. runoff from land based agriculture, oil spills, outputs from aquaculture); and
- changes to water flow regimes causing extensive sedimentation or erosion or altered currents in near shore habitat (e.g. canals and dredging).

Richard and Annabelle's Submission on the Strategic Assessment Review of the LNG Precinct at James Price Point lists some of the anthropogenic activities that they believe will have an impact on the whales in the adjacent area. They also note that a proposal for another industrial port facility for Point Torment (near Derby) gives rise to the prospect of further industrial shipping impacting on Kimberley whales.

Further reading

[Proposed Camden Sound Marine Park indicative management plan 2010](#)

[Strategic Assessment at James Price Point](#)

[Strategic assessment of the Browse Basin liquefied natural gas precinct](#)

Cathie Clement