Preliminary results of the South African Antarctic Blue Whale Cruise

K. J. Venter, P.B. Best & K. Findlay
Mammal Research Institute Whale Unit, University of Pretoria, Pretoria, South Africa. [c/o Iziko South African Museum, Cape Town, 8000]
Email: ***kirsty.venter@gmail.com***

Introduction

The Antarctic blue whale population was reduced significantly to less than 1% of its pre-exploitation size by commercial whaling (1904 – 1964), making the species difficult to study.

Between 1978 and 2010, the International Whaling Commission's (IWC) International Decade of Cetacean Research and Southern Ocean Whale Ecosystem Research programmes identified a summer 'hotspot' for this species between 000°-020˚E and south of 67°S during its feeding migrations. Both this 'hotspot' and the relatively high historic catches off the west coast of southern Africa provide opportunities for research on this endangered species. This study reports on their high latitude distribution relative to other cetacean species during a recent survey across this feeding ground hotspot area (Fig. 1).

Figure 1: Antarctic blue whale exhibiting feeding behaviour

Methods and Materials

A saw-tooth line transect survey was conducted (between 000 and 017˚ 30'E and between 67°S and the ice-edge) from the *SA Agulhas II* over a period of 9 consecutive days in January 2014.

Observations were carried out, in shifts, for 16 hours a day with 4 observers on watch at all times. During these observations hourly weather and sighting conditions were recorded, along with all search effort and all sightings of cetaceans.

Both binoculars and the naked eye were used to search ahead of the vessel and a suite of data (including GPS position, bearing, species identification and group size) was collected for each sighting. Potential blue whale sightings were closed on, and blue whales were photographed for individual identification purposes. Under suitable weather conditions, a small boat was launched to obtain both identification photographs and skin biopsy samples from blue whales.

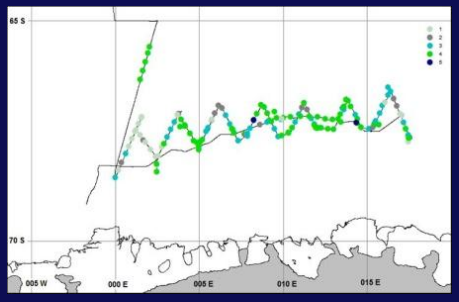

Figure 2: Survey effort showing sighting conditions. 1: Very Poor, 2: Poor, 3: Moderate, 4: Good and 5: Very Good

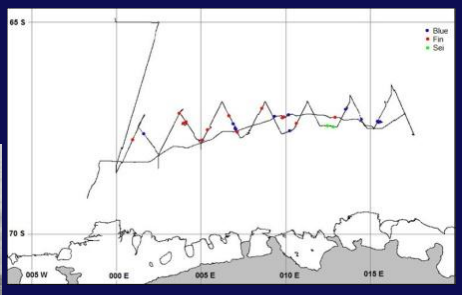

Figure 3: Distribution of Antarctic blue whales relative to other large baleen whale species.

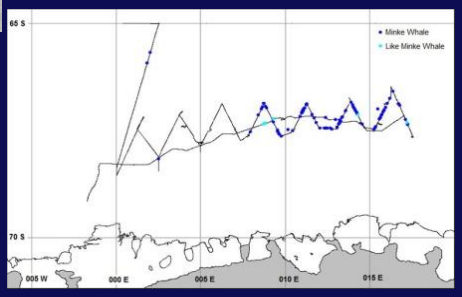

Figure 4: Minke whale distribution showing sighting mostly east of 008 ˚E.

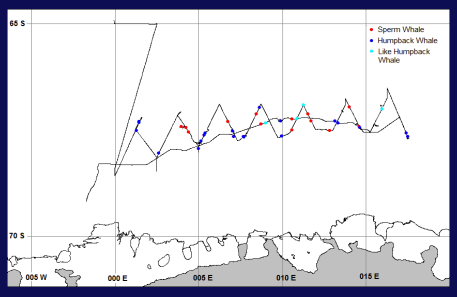

Figure 5: Sperm whale and humpback whale distributions showing the close association between humpback whales and the ice edge

Results

82 Hours of survey effort was achieved across 859 nautical miles during the course of the 9 day survey (Fig. 2).

An estimated 451 cetaceans were seen in 213 sightings. Of these 213 sightings, 17 were of 26 Antarctic blue whales aggregated between 007° and 015˚E (Fig. 3). An estimated 31 fin whales were sighted in 14 groups, while six sei whales were seen in two groups. The majority of fin whale sightings were west of 010 ˚E (Fig. 3). The most commonly sighted cetaceans were minke whales with a total of 238 individuals in 93 groups. 95% of these groups were found east of 008˚E (Fig. 4). The number of humpback whales encountered was lower than expected with only 21 sightings of 39 individuals, most of which. were seen close to the ice edge (Fig. 5). Other sighted species included sperm whales (13 sightings) (Fig. 5), killer whales (three sightings of approximately 14 individuals) and southern bottlenose whales (eight sightings).

Successful skin biopsy samples were collected from four individual blue whales and an estimated 16 were photographed well enough for photo identification.

Discussion

The number of blue whales sighted during this cruise confirms the area as a blue whale hotspot.

The majority of baleen whales sighted on this survey feed primarily on Antarctic krill (*Euphausia superba*). The distinct separation in the distribution of minke whales to the east and fin whales to the west, the general association of humpback whales with the ice edge, and the patchy distribution of blue whales may result from differing prey patch size preference or availability to each species. At least two of the blue whale groups approached by the small boat were confirmed to be feeding (Fig. 1). Co-incident echo-sounder surveys of prey distribution may inform these stratified whale distribution patterns.

All three groups of killer whales seen during this survey were Type B and all were patrolling the ice edge. Their distribution appeared closely related to sightings of minke whales, a prey species for this type of killer whale.

Acknowledgements
The Captain and crew of the *SA Agulhas II* are thanked for their dedicated assistance during this survey. This work was funded by the South African National Antarctic Programme and the National Research Foundation.