Recent Blue Whale Deaths Due to Ship Strikes around Sri Lanka

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Abstract

Two pygmy blue whales were struck and killed in Sri Lankan waters within a 12-day period in early 2012. The first was found draped on the bow of a container ship in Colombo Harbour on 20 March 2012 and following its disposal 25 km offshore, washed up on a beach 10 km south two days later. The second whale was found floating dead at sea by one of us (TW) on 2 April 2012. As this individual did not strand, no details apart from species and sex are available. The southern coast of Sri Lanka is one of the busiest shipping routes in the world (Kaluza *et al.*, 2010) and overlaps with an area of high whale sightings. Because there is no abundance estimate for the local population of blue whales, we do not know what impact these deaths might have on the population. However, the reported deaths can only be considered minimum values. These deaths and the unknown population size highlight the urgent need for long-term monitoring of the blue whale population in Sri Lankan waters and elsewhere in the northern Indian Ocean.

Introduction

Laist *et al*. (2001) reviewed available data related to ship collisions with whales. Ilangakoon (2006b) reported on 66 large whale (all baleen whales and sperm whales) stranding records compiled from the available literature or by the author from 1889 to 2004. Fifteen of the records were reported as blue whales and an additional nine records were reported as fin whales, but cause of death was not discussed for any of these whales. The details for most of these 66 whales were presented in Appendix I of Ilangakoon (2002) and included 13 blue whales and nine fin whales. In this paper, we review the details on two blue whales that were struck by vessels and killed in Sri Lankan waters in late March, early April 2012.

Results

A container ship, the *Quartz*, with a length of 258 m docked in the Colombo Harbour, Sri Lanka (6° 56' N and 79° 50' E) at 6:30 am on 20 March 2012 (Figure 1). The *Quartz*, managed by CMA CGM arrived from Chennai, South India having travelled along the south east coast of India and east coast of Sri Lanka prior to turning west along the southern coast of Sri Lanka and turning north along the west coast of Sri Lanka where it docked. After it docked a dead blue whale (*Balaenoptera musculus*) with an estimated total length of 60 feet (18 m) was discovered wrapped over the bulbous bow. A team from Colombo Engineering was contacted to tow the dead whale 25 km out to sea after attaching a rope tied around its tail. Unfortunately, this transpired before the whale could be properly examined or tissue samples collected for DNA analysis (species ID). We obtained photographs of this dead whale from Sopaka Karunasundera, a marine pilot with the Sri Lanka Ports Authority. These photographs allowed for positive identification of the species.

Figure 1: Blue whale on the bow of container ship *Quartz* at Colombo Harbour on the 20 March 2012.

The condition of the carcass was good (fresh) and not bloated and the skin appeared to be in good condition. Damage was seen on the left side of the body, however it is unclear what damage occurred on the right side of the body. Officers from the National Aquatic Resources Research and Development Agency (NARA) who saw the carcass reported to one of us (ADV) that it did not smell.

Two days later, on the evening of the 22 March at approximately 10 pm a 58 foot (18 m) dead whale washed ashore at Dehiwela, south of Colombo (located at 6° 50' N and 79° 51' E) (Fig. 2). Based on the skin and baleen colouration, and size the whale was identified as a blue whale. The fluke width was estimated to be approximately 4.5 m. The lack of an extended penis indicated that this specimen was a female. The carcass was in an advanced stage of decomposition. This specimen also had a rope tied around its tail (Figure 2), providing positive confirmation that it was the same individual from Colombo Harbour from two days before.

Figure 2: Blue whale washed up on beach at Dehiwela on 22 March 2012. The rope on the tail provided positive confirmation that it was the same individual sighted on 20 March 2012 at the Colombo Harbour.

On 2 April 2012 a fresh blue whale carcass (Figure 3) was observed floating at sea approximately 5.5 nm south of Mirissa (05˚ 51.335' N, 08˚ 25.235' E) off southern Sri Lanka. The team of underwater photographers with one of us (TW) comprehensively documented the individual through images. Through these we were able to confirm the species, observe the cause of death – a large gash that almost severed the tail stalk, and establish that this individual was a male due to the presence of a penis. No other data are available on the whale.

Figure 3: Blue whale carcass found floating at sea south of Mirissa on 2 April 2012. Large gash that almost severed tail stalk indicates that whale death was caused by ship strike.

Ship and blue whale distribution

Blue whales are are the most commonly documented baleen whale species in Sri Lankan waters (de Silva, 1987; Alling *et al.*, 1991; Ballance and Pitman, 1998; Ilangakoon, 2002; Ilangakoon, 2006a; Branch *et al.*, 2007; Afsal *et al.*, 2008; Broker and Ilangakoon, 2008; de Vos *et al.*, 2012). Due to the prevalence of this species a whale-watch industry was begun in Trincomalee on the northeast coast and Mirissa on the south coast of Sri Lanka. The shipping route between Chennai and Colombo traverses through these and other areas where blue whales have been documented.

The southern coast of Sri Lanka is one of the busiest shipping routes in the world (Figures 4 & 5), and overlaps with areas of high blue whale sightings (Figure 6).

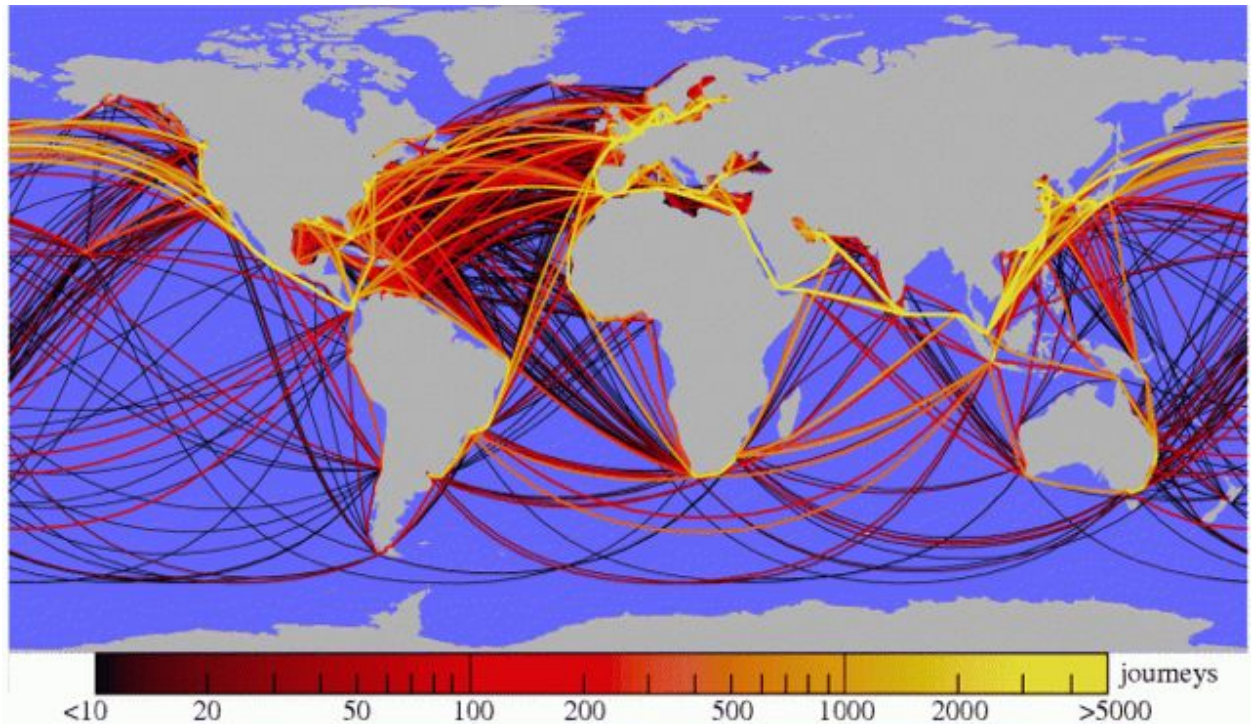

Figure 4: The trajectories of all cargo ships bigger than 10,000 GT during 2007. The colour scale indicates the number of journeys along each route. Ships are assumed to travel along the shortest paths on water (Kaluza *et al.*, 2010).

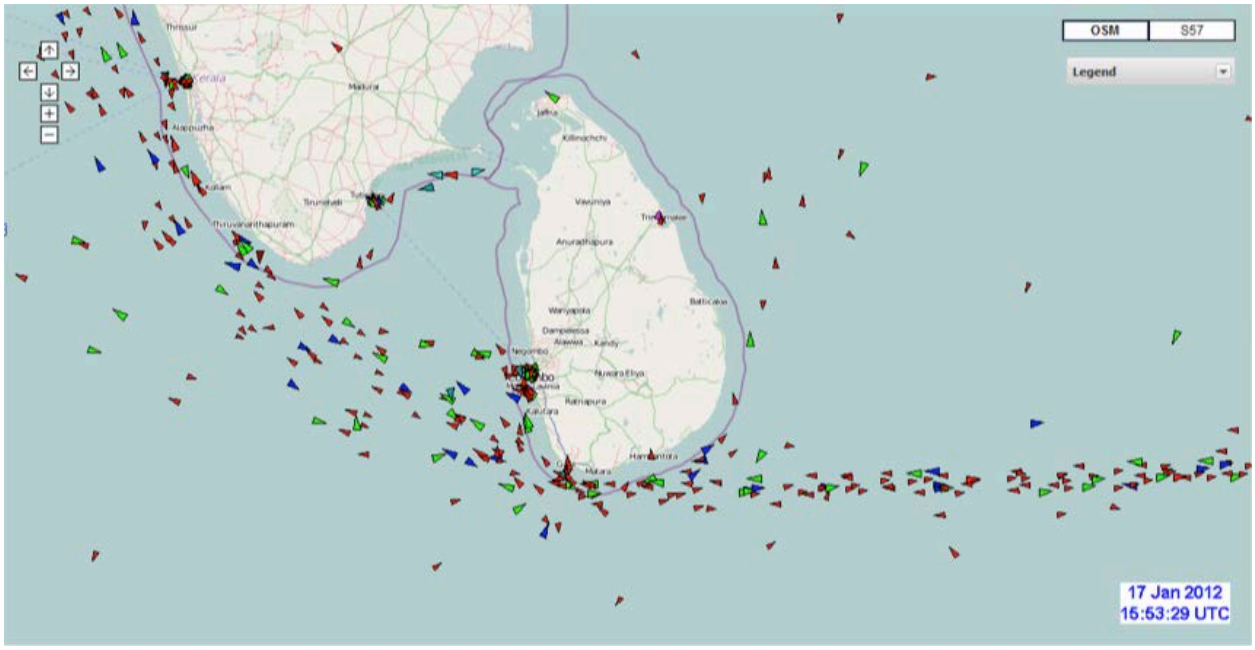

Figure 5: Snapshot of shipp traffic around Sri Lanka at 15:53:29 UTC on the 17th of January 2012. Different colours depict different kinds of ships (Source: ExactEarth).

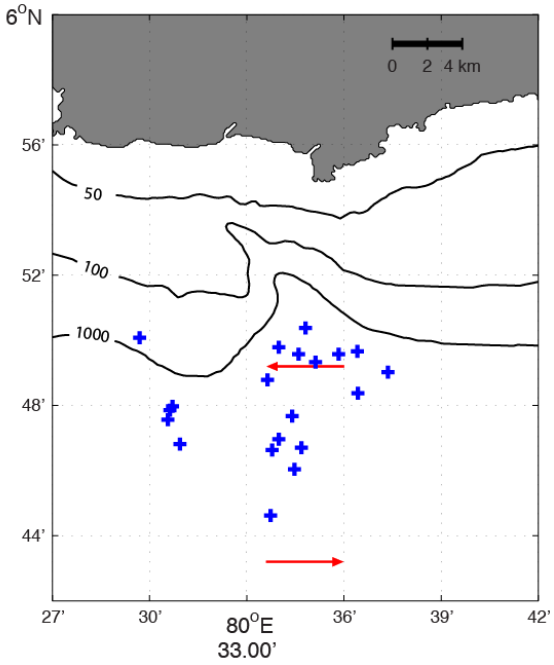

Figure 6: Map of blue whale sightings (blue crosses) gathered during a 4-hour survey conducted by ADV on the 18th of January 2012. Red arrows depict shipping lanes with direction indicated by arrowhead and black contours depict the 50 m, 100 m and 1,000 m depth contours respectively.

Discussion

The conservation status of the Northern Indian Ocean blue whale is currently unknown, but this population was heavily hunted in the 1960s by illegal Soviet factory ships on their way to the

Southern Ocean (Mikhalev, 1996), but is believed to be small. While these two incidents represent clear evidence of ship strikes, evidence of this nature is rare. Carcasses that wash up on the beach are generally badly decomposed making it difficult to determine cause of death. We believe that the two events reported here are not isolated incidents.

On 3 November 2004 a 43-foot (13.1 m) Bryde's whale (*Balaenoptera brydei*) also came into the Colombo Harbour lodged on the bow of a 275 m American President Lines container vessel *Cyprine*. The vessel was making a transit stop in Colombo en route from Singapore to Southampton when the whale was discovered. In this case, a tissue sample was collected and analysed by scientists from NARA who could then verify its species (Herath, 2007).

There is concern about the ship strikes being witnessed in the waters around Sri Lanka. While here we present three instances where evidence of ship strike is obvious, there are many other cases where individuals struck are unrecorded as they may sink or float offshore thus skewing the present dataset. The carcass discovered on the 2 April might have gone unrecorded if one of us (TW) had not been in the area. During our work along the south coast, we have witnessed a number of 'close calls' between whales and ships within the shipping lanes (ADV unpublished data).

Our primary concern is that the area in which the shipping lanes are situated may overlap with one that is important to this population, which appears to be resident in Sri Lankan waters year round. To date, we have observed a number of important behaviours such as courtship and feeding within the shipping lanes. Presently one of us (ADV) is investigating the oceanography of the area, particularly in light of the shipping lanes that are located along the steep continental slope along the southern coast. Steep continental slopes have been associated with upwellings (Pickart *et al.*, 2009) and may play a role in enhancing the productivity of the southern coast of Sri Lanka and thus maintaining a population of blue whales year-round. Understanding the importance of this area to the survival of this population is the overarching goal.

There is no current or past abundance estimate for this population of blue whales and the blue whale ship strikes we report here must be considered minimum values. Therefore, there is an urgent need to expand research on and long-term monitoring of this population. Without better data on both numbers of whales and numbers of ship strikes, we cannot evaluate the impact of ship strikes on this population, nor can we develop a mitigation plan to reduce these ship strikes. Once these data are available, they can be used to develop a conservation management plan for Sri Lankan blue whales within the frame work provided by Vanderlaan and Taggart (2007), Berman-Kowalewski *et al*. (2010) and Lawson and Lesage (2013).

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