

Dead Blue Whale in Puerto Montt, Chile: Another Case of Ship Collision Mortality

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Introduction

Blue whales (*Balaenoptera musculus*) are found worldwide. In the Southern Hemisphere, the highest sighting rates are from Indonesia, Sri Lanka, Chile, southwestern Australia, and south of Madagascar with the highest number of sightings off the northwest coast of Isla Grande de Chiloe, Chile (Branch *et al.* 2007).

Collisions between ships and whales are a worldwide problem that is well-documented for fin and right whales (Laist *et al.*, 2001; Kraus *et al.*, 2005; Panigada *et al.*, 2006) and has been reported more recently for blue whales off California and Sri Lanka (Berman-Kowalewski *et al.* 2010, DeVos *et al.* 2013)

This paper reports a recent blue whale ship strike from Puerto Montt in southern Chile in February 2014 and reviews other recent baleen whale deaths in the same region from 2005 to 2013 and their possible causes.

Results

At about 08:50 on 12 February 2014, the Chilean Navy in Puerto Montt, Chile received a report of a whale on the beach in the Pilluco section of Puerto Montt, Chile. According to Hernan Ascencio, a member of the Centro de Conservacion Cetacea stranding network, the whale was first observed stranded on Pilluco Beach at about 08:00. The whale stranded about the same time that two large cruise vessels arrived into Bahia de Puerto Montt that morning. These cruise vessels were the M/S *Albatros* (Bahamas) and M/S *Regatta* (Marshall Islands) with total lengths of 205 and 181 meters, respectively. The M/S *Albatros* arrived first at about 07:30 and then the M/S *Regatta*. When the whale was discovered the *Albatros* and the *Regatta* were at anchor approximately 500 meters offshore from the whale. Passengers from both vessels were ashore visiting Puerto Montt for the day.

Although several people believed that the whale could have been alive when it stranded, we examined the photographs and video recordings of the whale at that time, which show that it was dead (belly up and slightly bloated).

While the whale was on the beach at Pilluco, it was determined that the specimen was a blue whale male and that the right flipper was fractured and almost broken off near its mid-point. Due to sanitary/health concerns, the whale was towed a short distance offshore from Pilluco by the Chilean Navy and released. But heavy wind conditions caused the whale to strand again two days later (14 February) on the southern side of Isla Maillen. The distance between Pilluco Beach and Isla Maillen is about 13 km. Two of us (BGV and EC) visited Isla Maillen on 18 February to examine the whale, collect samples, obtain measurements and take photographs.

Both the M/S *Albatros* and M/S *Regatta* departed Puerto Chacabuco (45°25'S) at approximately 21:00 on 11 February and arrived to Bahia Puerto Montt the morning of 12 February. From Puerto Chacabuco, they navigated out through the Fiordo Aysen, to Canal de Moraleda, across the Golfo Corcovado, inshore through the Canal Desertores, Golfo de Ancud and Seno Reloncavi to Bahia Puerto Montt. These vessels travel at approximately 20 knots. The M/S *Albatros* reported to the navy in Puerto Montt a concentration of whales in the north end of the Canal Moraleda, between Islas Queitao north to two miles south of Isla Muchey. The total distance between Puerto Chacabuco and Puerto Montt is approximately 240 nm. Thus, the *Albatros*, traveling at about 20 knots, would have been in the whale concentration around 02:00 to 02:30 on 12 February.

Two of us (EC and RLB) re-examined the whale on the beach at Isla Maillen on 24 February. The male carcass had a total length of 21.20 m and its right flipper was broken near the mid-point (Figure 2). The left mandible also was broken about 20% of its length from the tip and the bone was exposed through the blubber (Figure 3).

Since 1998, we have collected data on five other dead baleen whales around Isla Chiloe. Three of these were blue whales: (1) one stranded in 1997 (Branch *et al.* 2007), near Llico Bajo about 41°S; (2) a male with a total length of 24.4 m that stranded on 29 March 2005 in the Bahia de Pumillahue ca. 40 km southwest of Ancud, Isla Chiloe; and (3) a male with a total length of 21.5 meters that stranded at Puerto Godoy on 26 April 2013. Two other dead baleen whales have been recorded in the region around Isla Chiloe. The first one was a dead floating carcass observed by two of us (BGV and EC) during an aerial survey on 12 March 2007 at approximately 40.86°S by 74.21°W about 14 nm offshore. The second animal was a fresh sei whale (female with a total length of 13.7 m) that was on the bow of a vessel (293 m in total length) that arrived at Puerto Montt on 29 January 2009 and was in transit from Punta Arenas, Chile (Brownell *et al.* 2009).

Discussion

There are four published records of possible vessel strikes of large whales from Chilean waters (Sanino and Yanez 2005, Brownell *et al.* 2009). The first three records are from Sanino and Yanez (2005). The first is their case number 3, a sperm whale (*Physeter macrocephalus*) from near Boyeruca (34°42'S, 72°04'W) on 21 September 2003. The second specimen (case number 4) was reported as either a sei whale or Bryde's whale (*Balaenoptera edeni*) from

Talcahuano (36°45'S, 73°08'W) on 5 October 2003. The third (case number 6) is a fin whale (*Balaenoptera physalus*) from the Bahia de Quintero on 9 July 2004. The fourth case was a sei whale (*Balaenoptera borealis*) from Puerto Montt on 29 January 2009 reported by Brownell *et al.* (2009). The sperm whale was reported to have been hit by a local artisanal fishing boat and then stranded alive with propeller cuts. After the necropsy, it was thought to have hemorrhaged to death. In the sei or Bryde's whale, the authors reported, based on pictures, that the side of the whale was bruised. We examined their specimens 4 and 6 but did not find any evidence of vessel collision. However, external injuries are not always present on whales hit by vessels. One of us (BGV) examined their specimen number 4 that stranded in Talcahuano and determined that it was a female sei whale with a total length of 15.3 m. We also examined their whale specimen number 6, which was released offshore after it first stranded at Quintero (32°47'S, 71°32'W) on 9 July 2004 and then stranded again on 17 July 2004 at Tunquen (33°15'S, 71°40' W). We could confirm that it was a fin whale when we examined it at Tunquen but we could not determine the cause of death. Sanino and Yanez (2005) reported that the fin whale probably died from a vessel strike because the region around the left flipper was more decomposed than the rest of the carcass. However, when one of us (BGV) and others examined the carcass, we did not observe any difference in the extent of decomposition around the left flipper and the rest of the carcass. Therefore, we believe the cause of death for this specimen cannot be determined.

Conclusions

More records of whales hit by vessels are being reported in Chile but this may not represent an increase in ship strikes, but just the result of improved reporting due to greater public awareness and the CCC stranding network. Here we report the second baleen whale killed by a large vessel in the Inland Passage of southern Chile. This blue whale and the sei whale from the same region in 2009 raise concerns about what factors may be predisposing baleen whales to ship strikes in this area (Galletti Vernazzani *et al.* 2012). These limited ship strike data, along with the known areas used by baleen whales, can be used to start developing the outline for a conservation management plan for Chilean baleen whales, using the context of other recent studies on blue whales hit by vessels (Vanderlaan *et al.* 2007, Berman-Kowalewski *et al.* 2011).

Recommendations

The reporting system needs to be expanded to collect additional details on vessel strikes in Chile, especially in the Inland Passage region. As a starting point, this can best be accomplished through cooperation between researchers and the public, port authorities, international vessels, and the naval regional offices. If any hotspots of vessel/whale occurrence are identified, these data then could be used to develop plans to reduce the possibility of collisions between ships and whales in these regions.

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Figure 1. Blue whale stranded on Isla Maillen, near Puerto Montt, Chile February 2014. The species identification is based on the ventral coloration and all black baleen.



Figure 2. Photograph of broken right flipper.





Figure 3. Photographs of broken left mandible.



Figure 4. General route taken by cruise ships along the southern coast of Chile provided by the DIRECTEMAR. This northern part of this route agrees with the path reported to be used by the M/S Albatros.