

# Short description of a near-miss event involving a large vessel and humpback whales (*Megaptera novaeangliae*) off Antarctica

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## ABSTRACT

During recent decades the worldwide number of collisions between vessels and cetaceans has increased steadily. Not much is known about how collisions occur, because they are rarely directly observed. Likewise, reports of near-miss events are virtually non-existent in the scientific literature. Here, a near miss event is described, involving a cruise ship and humpback whales (*Megaptera novaeangliae*) off Antarctica. On 22 February 2009, the cruise ship encountered two humpback whales while approaching Cuverville Island (Antarctic Peninsula, approx. 64°43' S, 62°36'W). The animals were sighted logging on the surface at a distance of approximately 500 metres. The ship travelled at less than 10 knots, thereby closing in on the whales without purposefully approaching them. At a remaining distance of roughly 100 m, now clearly on collision course, the vessel crew initiated an avoiding manoeuvre, but due to the low speed the vessel reacted only slowly. The animals did not react until the vessel was within a few metres. At a distance of about 10 m, one of the whales appeared to “wake up”. First it turned away from the vessel relatively slowly, and then performed a startle reaction by sharply as well as vigorously turning away from the vessel. The other whale did so likewise. Both whales caused a lot of splashing during their last-second manoeuvres. The ship had come up to approximately 3 metres of the animals, but did not collide with them. The most likely explanation for this incident is that the whales were resting and therefore had a reduced alertness to outside stimuli. They apparently neither saw nor heard the vessel in a way that made them aware of a risk of collision. These observations contribute to a better understanding of cetaceans' behaviour in the context of the so-called “ship strike issue”.

KEYWORDS : SHIP COLLISIONS, BEHAVIOUR, HUMPBACK WHALES, NEAR MISS, CRUISE SHIP

## INTRODUCTION

During recent decades, with the rapid development of shipping traffic, the worldwide number of collisions seems to be increasing (Laist *et al.*, 2001; IWC, 2008). Where known, the types of vessels involved include a great variety of watercraft comprising large ships like tankers, cargo or cruise ships, but also whale watching vessels, navy vessels, yachts, hydrofoils as well as others (Laist *et al.*, 2001; Jensen & Silber, 2004; Van Waerebeek *et al.*, 2007; Ritter, 2008; Ritter, 2009). Whales may be hit either by the bow, the keel or any other part of a vessel's hull, or by its propeller. Whales struck sometimes are stuck on the bow of large ships and carried over substantial distances (e.g. Laist *et al.*, 2001; Félix & Van Waerebeek, 2005).

Cetacean species affected include both large whales and small cetaceans like dolphins, beaked whales a.o. (see review by Van Waerebeek *et al.*, 2007). One of the species which apparently is hit regularly, is the humpback whale (*Megaptera novaeangliae*) (Ritter, 2009; Van Waerebeek *et al.*, 2007; WDCS, 2006).

Large vessel ship strikes are rarely observed directly, and the same apparently accounts for near miss events. Hence, detailed descriptions of near-miss events currently are missing in the scientific literature. Here, a near-miss event observed from a large vessel, is described. Several aspects of the observations, notably the behaviour of the whales, can lead to a better understanding of ship strike events.

## METHOD

The observations were made from the bridge of a German cruise ship, a motor vessel of 123 metres length, during a regular “expedition cruise” along the Antarctic Peninsula. The vessel has the highest ice class (E4) for passenger ships and thus is able to navigate in polar waters with heavy ice coverage. During an Antarctic “expedition cruise”, one of the main aims is to encounter and observe wildlife, i.a. whales. For this purpose, biologists and other experts on board act as members of the expedition team as well as outlooks. At the time of the described event, I was standing on the bridge and the peaks of the ship as an outlook for cetaceans and other marine wildlife, approximately 12.5 m above the sea surface. The sea was scanned for wildlife, e.g. penguins, seals and cetaceans by naked eye and with binoculars.

## RESULTS

On 22 February 2009, the vessel encountered two humpback whales while approaching Cuverville Island (Antarctic Peninsula, approx. 64°43'S, 62°36'W). The animals were sighted at a distance of approximately 500 metres in front of the ship, roughly 20° on port side. The animals were logging on the surface for longer periods of time, moving very slowly, orientated towards the path of the vessel, and intermittently leaving the surface.

The ship travelled at a speed of less than 10 knots in a straight direction, thereby closing in on the whales without purposefully approaching them. The whales then left the surface and surfaced again after a minute or so, now being much closer (estimated 100 m). They again started to float on the surface, with their heads still pointing in an right

angle towards the path of the ship, only a few degrees to port side. The chief mate realized that the whales did not react and that the vessel was on a collision course now, therefore he instructed the helmsman to avoid the whales. However, due to the low speed, the vessel turned only slowly, coming closer and closer to the animals, which still did not show any sign that they had recognized the presence of the vessel. When the distance was about 30 metres, the chief mate commanded “Hard starboard!” to avoid a collision. The vessel slowly turned, but not fast enough to get out of the way of the animals.

The animals did not show any reaction until the vessel was within a few metres. At a distance of about 10 m, one of the whales appeared to “wake up”. First it turned away from the vessel relatively slowly, but then showed a startle reaction and sharply as well as vigorously turned to the left, away from the vessel. The other whale then also reacted, forcefully performing a full turn while diving away from the ship (in the opposite direction of its mate). Both whales caused a lot of splashing during their last-second manoeuvres. The ship had come up to approximately 3 metres of the whales, but did not collide with the animals.

## DISCUSSION

Collision cases with cruise ship have been reported several times in the past (Jensen & Silber, 2004; Laist *et al.*, 2001; Brownell *et al.*, 2009). Mostly these cases involved whales stuck on the bow, thus the accident being recognised only upon arrival at a harbour. The vessel described here also had a collision in 2007, when it hit a humpback whale which was stuck on the bow. The vessel had to manoeuvre backwards so as to unlodge the animal, which died during this encounter (Ulf Wolter, pers. comm.). Therefore, we can suggest that ship strikes involving cruise ships, albeit the potentially large number of crew members and guests being “alert”, do occur more often than actually recognised or reported. The same almost certainly will apply for near misses. A vessel passing by a large whale, even within short distances, might not at all be recognized as a dangerous situation. Own observations with animals being within at short distances (<50 m) of cruise ships underline this assumption. Hence it is suspected that near misses are much more frequent than generally thought, a problem that is well recognized for actual strikes since very long.

The avoiding manoeuvres of the whales were remarkable. Even more striking, though, was the fact that these were last-second responses in a true sense. The animals’ behaviour just prior to the near miss event indicated that the animals were resting. Apparently their sensual outreach was markedly reduced, and thus they neither saw nor heard the vessel in a way that made them aware of the vessel and a risk of collision, respectively. Sperm whales have been suspected to have bi-hemispheric sleep and therefore not responded to (sailing) vessels even at distances of only a few metres (Miller *et al.*, 2008). We do not know if the same is true for baleen whales, or humpbacks, respectively. However, the observations made here also may explain, at least in part why humpback whales as a species generally are affected by ship strikes relatively often (Ritter, 2009; Van Waerebeek, 2007; WDCS, 2006).

Finally the case reported here underlines the fact that large whales might not respond “automatically” to the approach of a large vessel. Hence, slow vessel speed only, as well as placing dedicated observers might not be enough to generally avoid collisions.

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