

Humpback whale sightings in southern waters of the Dominican Republic lead to proactive conservation measures

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The Amigos de los Delfines made four sightings of humpback whales (Megaptera novaeangliae) during surveys for dolphins near the Parque Nacional del Este (Eastern National Park), on the south-eastern coast of the Dominican Republic in March 2005. A number of behaviours were documented, including breaching apparently in response to harassment by local tour boats. The northern waters of the country are well known breeding sites for humpback whales, which led to the creation of the Silver Bank Marine Mammal Sanctuary. The information obtained during these sightings has led to a number of management efforts to reduce the impacts of human activities on the whales beyond the borders of the Sanctuary.

Keywords: humpback whale, southern Dominican Republic, distribution, proactive conservation, vessel disturbance, whalewatching management

The Proyecto Amigos de los Delfines is a collaborative project¹ established in 2004 with the aim of conducting baseline research on and promoting conservation of cetaceans in the waters of the Dominican Republic. In particular, the project focuses on bottlenose dolphins (*Tursiops truncatus*) in the coastal waters adjacent to Bayahibe and the Parque Nacional del Este (Eastern National Park), on the south-eastern coast of the Dominican Republic (Figure 1). While undertaking surveys for dolphins in the coastal waters of the national park in March 2005, multiple humpback whale (*Megaptera novaeangliae*) sightings were made that, to the authors' knowledge, extends the known range of the species during its winter breeding activities.

On 16 March 2005, under sea state 4 conditions, a humpback whale was sighted approximately 3 miles off the coast of Saona Island (18°07'55"N 68°48'39"W) while a large flock of feeding

birds was being investigated for the possible presence of dolphins. A group of three other whales, including a calf in the centre, were also observed within a minute of the initial sighting, with the original whale apparently moving towards them. All the whales were taking short, shallow dives and moved rapidly east in waters of approximately 20 m depth as the lone whale approached the group. On several occasions all four whales were observed surfacing at the same time in close proximity. After 30 minutes, the group of three whales, presumed to be composed of a mother–calf pair and a male escort (Spitz *et al.*, 2002), came to an abrupt stop and appeared to be resting on the surface. The fourth humpback, a presumed challenging male or secondary escort (Spitz *et al.*, 2002), could not be sighted during this period. After 2 minutes the group of 3 whales continued in the direction in which they were originally heading and the encounter was terminated due to deteriorating sea conditions. Dorsal fin pictures were taken of each whale, but at no time did any of the whales raise their flukes out of the water.

Almost one week later, on 20 March, a different whale (as determined later through a comparison of the dorsal fins) was sighted less than 100 m from the coast of Saona Island (18°06'426"N 068°41'722"W) heading south, away from the island. The whale was deemed to be a small adult due to its length of approximately 10 m. Approximately 12 minutes into the encounter, the whale 'half-breached with a twist' and then slapped its pectoral fin, continuing to move into deeper waters. Deteriorating sea conditions forced the encounter to end after 35 minutes, again with only dorsal fin pictures for identification as the whale did not raise its flukes out of the water.

On 26 March, two more humpbacks were sighted moving south parallel to the mainland coast of the Dominican Republic (18°16'185"N 068°49'615"W). Sheltered from the wind at this location, sea conditions were much better for

¹'Proyecto Amigos de los Delfines' or 'Friends of the Dolphin Project' is a truly collaborative project: it utilizes scientists and students from academic bodies in the Dominican Republic, the United Kingdom and the United States of America (e.g. the Academia de Ciencias, DR; George Mason University, USA; University of London, UK), non-governmental organizations (e.g. Fundación Dominicana de Estudios Marinos—FUNDEMAR, Patronato Amigos De Los Animales—PADELA, Humane Society International, World Society for the Protection of Animals and the Whale and Dolphin Conservation Society), local community groups (e.g. Fundación para el Desarrollo de Bayahibe—ECOPARQUE), tourism bodies (e.g. Asociación de Hoteles Romana-Bayahibe) and government officials (including the Subsecretaria de Areas Protegidas y Biodiversidad—Undersecretary of Protected Areas and Biodiversity, and the Subsecretaria de Recursos Costeros y Marinos—Undersecretary of Coastal and Marine Resources).

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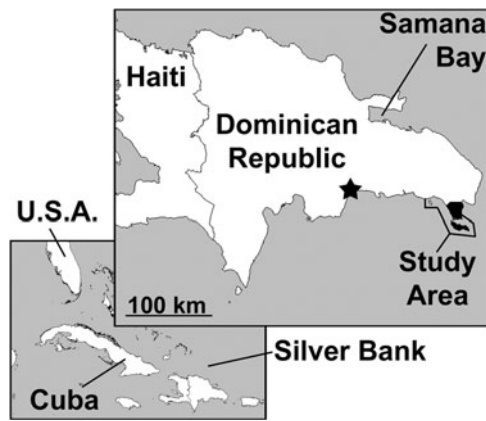


Fig. 1. Map of the Dominican Republic with the location of the study area. The area in black shows the location of Parque Nacional del Este. The star shows the location of Santo Domingo.

this encounter (sea state 1). The pair moved slowly, with one humpback consistently closer to shore in waters less than 25 m. This behaviour appeared somewhat similar to the herding behaviour seen in bottlenose dolphins (*Tursiops* spp.) when males 'sequester and control the movements of females' (Connor *et al.*, 1992; see also Tolley *et al.*, 1995). Although changing direction several times, apparently to avoid extremely shallow water, the pair did move through areas where the depth was approximately 5 m. Dive times were between 6 and 8 minutes until the whales entered water less than 10 m, when dives became more erratic and considerably shorter. The travel speed of the pair was also slowest at this depth.

The path of the whales took them along a well-used tourist beach on Saona Island (Catuano), at which point two large speed boats with twin 200 HP engines came from further along the coast and moved parallel to the beach at speed, passing approximately 50 m seaward of the whales. Concurrently, the whales turned directly away from the shore and picked up speed. Although they did resume travel in their original direction once they reached waters of approximately 20 m deep, the curve of the coastline meant that this was now taking them offshore and away from the beach. After 1 hour 50 minutes, the encounter was again ended due to deteriorating sea state conditions. Dorsal pictures were obtained for both humpbacks on various occasions and the fluke of the outside whale was recorded for 3 of 4 observed fluke-out dives. The inner whale did not raise its flukes during the encounter.

The following day, 27 March, a humpback whale was sighted when it breached near two catamarans taking tourists out to Catuano on Saona Island ($18^{\circ}12'039''N$ $68^{\circ}47'292''W$). On closer inspection a calf was also spotted and dorsal fin pictures taken confirmed that this was the mother-calf pair observed on 16 March. The breaching continued as the whales and catamarans all moved in a southeasterly direction parallel to the shore until the catamarans turned toward Catuano. However, the breaching had attracted the attention of a number of speedboats similar to those encountered the previous day, which began to follow the pair. The larger whale, presumably the mother, continued to display agitated behaviour, at one point launching her entire rear half out of the water for huge repeated side/tail slaps. The calf did a fluke-out dive as a few more speedboats approached the pair. At one

point there were seven speedboats within 500 m of the whales, including several within 100 m, in addition to the research boat and a stationary fishing boat that happened to be in the path of the whales. Although some speedboats maintained their distance in response to the shouted requests of the survey team, several would accelerate aggressively to bring their tourist passengers as close to the whales as possible whenever they would surface. This appeared to elicit tail slaps and 'chuffing' (in a similar manner to that described in rough-toothed dolphins, *Steno bredanensis*, by Kuczaj & Yeater, 2007) from the mother on each occasion, which are thought to be a response to disturbance (Whitt & Read, 2006).

After 14 minutes with the whales, several of the speedboats left the whales, accelerating rapidly in the direction of Catuano. The mother half-breached and then full-breached coincidentally with the departures, possibly in reaction to the sudden increase in noise generated by the engines. Eventually, 25 minutes after the initial sighting, both whales did a fluke-out dive and the remaining three boats left for the beach, leaving the survey boat alone with the pair. The mother half-breached only once during the rest of the encounter, which lasted another 17 minutes. At that time the mother 'chuffed' and the pair made an abrupt 180° turn. The survey team decided to end the sighting in order not to cause the whales any further distress.

The breeding population of humpback whales across the West Indies is thought to be increasing and was around 10,752 individuals in 1992 and 1993 (Stevick, 2003). In particular, the northern waters of the Dominican Republic are known to be internationally important breeding sites for humpback whales, in particular Samana Bay (Mattila *et al.*, 1994) and Silver Bank (Winn *et al.*, 1975; Mattila *et al.*, 1989). In 1986, the waters of Silver Bank were declared a Marine Mammal Sanctuary, meaning that killing, captured, or harassment of whales were no longer permitted, and a code of conduct was introduced for whalewatching activities, as well as certain regulatory measures regarding fishing activities. In 1996, the limits of the sanctuary were increased to 25,000 km², to include Banco de Navidad and Samana, and protection similar to that provided within the Sanctuary was provided to humpback whales throughout all the waters of the Dominican Republic. However, in 2004, the controversial Sectorial Law 202-04 restricted protection to newly designated sanctuary boundaries. Thus, since 2004 and at the time of the above sightings, protective regulations for whales had been restricted to just the northern waters of the Dominican Republic.

The sightings detailed above indicated, however, that it is not just waters to the north of the Dominican Republic that are utilised by humpback whales. Moreover, the humpbacks did not appear to be merely travelling through the region, as the mother-calf pair had been in the area for at least 2 weeks. Some enquiries established that there were confirmed sightings of humpbacks in this area in the early 1980s (Oswaldo Vásquez, personal communication), although there has been little or no survey effort between then and the current programme. The details of these sightings, the actions of the tourist boats and the known history of encounters with humpback whales in this area prompted members of the Amigos de los Delfines project to contact the Undersecretary of Protected Areas and Biodiversity of the Dominican Republic government, to express concerns about the conservation and protection of humpback whales in southern waters of the Dominican Republic.

The government of the Dominican Republic took note of the issue and a meeting was arranged with various tourism operators working in the region of Parque Nacional del Este, which was held on 16 November 2005. At this workshop, members of the Amigos de los Delfines presented a 'Guide to Good Practices for the Conservation of Marine Mammals', developed with the input of scientists, government officials, members of the tourism sector and with the support of local communities in whalewatching areas. The government endorsed the use of whalewatching codes of conduct to reduce the impacts of tourism activities on whales in the southern waters of the Dominican Republic and the guide will hopefully become nationally recognized.

The workshop was followed by a training programme (ongoing at this time), supported by the Dominican government, for boat owners and operators, as well as other related members of the tourism sector, to emphasize codes of conduct and best practices for responsible whalewatching. Additionally, a second workshop was held on 18 April 2006 to further increase public awareness about the guide, the rationale for it and ecotourism in general. Participants included representatives from tour operators and others with commercial interests (such as the merchant navy), the government of the Dominican Republic (including the navy and environmental police) and local tour guides and operators. Although not yet formally included in regulations, the guide has been very well received, with wide-ranging voluntary implementation. Many fishermen and boat captains are now also contributing sighting information to the study.

Prior to these sightings in southern waters of the Dominican Republic, concern for the impacts of whalewatching activities on humpbacks was confined to northern waters (e.g. Samana Bay) and management efforts at restricting whalewatching impacts were directed only toward this area. The authorities of the Dominican Republic acknowledged the harassment caused by the vessels in southern waters and promoted whalewatching guidelines throughout their waters as a precautionary measure in the face of uncertainty over the entire range of humpback whales.

The authors would like to offer this process as a demonstration of how quickly it is possible to assimilate new scientific data into management efforts to conserve a vulnerable species. Similarly, this case study also shows how important it is that those directly affected by voluntary guidelines are not only aware of them, but also fully understand the reasons behind them. At this community level, sightings of humpback whales in southern waters open the possibility for a rapid growth in whalewatching activity in this area. The precautionary approach shown to date will limit the impacts of boat operators on whales and ultimately sustain a valuable tourism resource for the local people in this area.

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