

Watching Cetaceans from Land in the Canary Islands: Implications for the Management of Whale Watching



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Introduction

In the Canary Islands, 29 cetacean species have been documented. Boat based whale watching was established in the early 1990s, growing slowly in most islands, while having witnessed an extreme growth on Tenerife. Effective regulation of the industry currently is missing. While boat-based studies are going on since many years (see e.g. Ritter, 2003), little effort has been made to date to systematically observe cetaceans from land (Smit *et al.*, 2003). This study was conducted so as to find feasible viewpoints for land-based observations of cetaceans on the coast of La Gomera. Its coast predominantly being rocky and steep, with heights of up to several hundred metres within short distances from the shoreline, this island constitutes generally favourable conditions.

Method

From 19 October until 18 November 2010, suitable vantage points along the coast of Valle Gran Rey, close to the area where most whale watching activities take place, were searched for and then compared. They ranged from 50-187 m height above sea level, and subsequently were further checked for criteria such as accessibility and visibility range. The suitability of viewpoints was also evaluated by the possibilities to identify animals to the species level and to observe interactions between boats and cetaceans. Observations were made with a *Swarovski Habicht AT 80 HD* telescope with 30x wide angle and 20–60x zoom oculars, mounted on a *Manfrotto 055cb* tripod, and a standard pairs of binoculars (*Bushnell*, 10x). Communication between the observer on land and the skippers on board of the whale watching vessels was established via mobile phone. Observation distances were later retrieved from on board data forms filled in by the skippers during sightings.



Map 1. Location of the Canary Islands (left) and vantage points for land-based observations (right) along the coast of Valle Gran Rey (La Gomera, Canary Islands).

Results

Four locations for land-based observation were identified (see Table 1 and Map 1). 28 h 30 min of sighting effort resulted in 8 cetacean sightings and a total of 2 h 25 min of observation. Two species were identified: short-finned pilot whales (*Globicephala macrorhynchus*, 5 sightings) and bottlenose dolphins (*Tursiops truncatus*, 3 sightings). Observation distance ranged from approximately 1 to 5.3 nm from shore. During five sightings, it was possible to conduct behavioural observations by determining group formation and movement patterns. Individual behaviours also could be observed, as in two cases animals visibly performed *spyhops* and *tail slaps* at a distance of 4.8 nm from the observer. Two types of interactions with whale watching vessels were recorded. Firstly, pilot whales changed their swimming direction in relation to a boat. Secondly, bottlenose dolphins swam in the front wave of a vessel (*bowriding behaviour*). Furthermore, during four sightings it was feasible to track the animals' travel direction after the boat(s) had left.

Location	Altitude	Field of vision	visible	Contact to ww boats	Sighting success
Argaga	69 m	150°	6 nm	Yes	Yes
Vueltas	50 m	165°	3 nm	Yes	No
Playa del Ingles mountain	67 m	180°	5 nm	No	No
La Dama	187 m	170°	7 nm	Yes	Yes

Table 1. Vantage points for land-based observation on La Gomera: altitude above sea level, maximum visible range (approximations), field of vision and contact to whale watching vessels, and sighting success.

Highest sighting success was achieved at the vantage point “Argaga” (see Figure 1). Ample visible range of up to 6 nm offshore (depending on weather and sea state) and a field of vision of 150° made it possible to monitor a large area and to conduct detailed observations, including species identification. Mostly, direct sighting contact to the whale watching boats was given, and during one sighting it was thus possible to direct a vessel via mobile phone towards a group of pilot whales.

Discussion

This study demonstrated that it is possible to use land-based vantage points (*a*) to locate and identify animals; (*b*) to observe cetacean behaviour; (*c*) to observe their interactions with vessels and (*d*) to direct whale watching boats to cetaceans spotted from land. Hence, the combination of land-based observations and monitoring from whale watching vessels offers a possibility of comprehensive data collection (Hastie *et al.*, 2004) from different perspectives.

Land-based observations have been used in a variety of studies around the world and repeatedly contributed to the knowledge about cetacean movement patterns and surface behaviour as well as vessel-cetacean interactions (Jelinski *et al.*, 2002; Sini *et al.*, 2005). Land-based studies have several advantages: (*i*) Minimal intervention, because it is possible to observe cetaceans with no effect on the animals. (*ii*) Collected data are easier to standardize, because of the fixed area that is observed (Evans & Hammond, 2004). (*iii*) They also are cheaper and therefore can be conducted at greater frequencies or for longer periods of time. (*iv*) They offer the chance to effectively monitor compliance with whale watching regulations (Smit *et al.*, 2003).

Our results show that the coast of La Gomera is suitable for cetacean watching from land. With permanent look-outs such as the ones used since long time in the Azores (Gordon & Matthews, 1999), a constant monitoring scheme of cetaceans and whale watching vessels could be established (see also Smit *et al.*, 2003). This situation is similar to most other Canary Islands. At the same time, there is a strong general need for whale watching tourism to be monitored more rigorously (Williams *et al.*, 2002; Williams & Ashe, 2007). We therefore recommend the setting up of permanent look-outs on the coast of La Gomera as well as on other Canary Islands like for example Tenerife and Gran Canaria. Land-based observations can also be used to improve the sighting success of whale watchers as well as to disperse vessels so as to diminish numbers of boats around the same group (see Ritter, 2003; Ritter, 2012). Land based monitoring of vessel movements within important cetacean habitats will greatly facilitate to examine compliance with the Canary Island whale watching regulations. Finally, a similar approach can be used to investigate interactions between cetaceans and other types of vessels, such as high speed ferries.

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