

# A note on a sighting of a large school of fin whales in the Eastern Subtropical South Pacific

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## ABSTRACT

Here we report a sighting of a large school of fin whales on 30th May 2010 approximately 2,810 km west of continental coast of Chile (21°27'S, 97°34'W). This sighting supports the limited available information that fin whales migrate to open ocean in Sub-tropical waters in the austral fall-winter. Given the accepted migration pattern that fin whales reproduce in low latitude and the reproductive processes begins in April or May, we suggest that the geographic location of our sighting could correspond to, or to be near, of a breeding ground for this species in the South Pacific.

## INTRODUCTION

The fin whale (*Balaenoptera physalus*) is a cosmopolitan species found in most large water masses of the world, from the Equator to the polar regions (Aguilar, 2002; Jefferson *et al.*, 2008), although in the most extreme latitudes they may be absent near the ice edge (Gambell, 1985).

In the Southern Hemisphere, fin whales engage in north-south seasonal migration, feeding in high-latitude areas during the summer (above 50°S) (Brown, 1954, 1962; Clarke, 1962; Gambell, 1974, 1985), and breeding in temperate or tropical waters during the winter (Mackintosh, 1942; Gambell, 1974; Aguilar, 2002). Moreover, the largest concentrations are usually located in temperate and cold waters outside the continental slope than inside of it (Aguilar, 2002), and although the main feeding grounds have been broadly described, the location and season in which pairing and calving occurs remains largely unknown (Mackintosh 1965) because, unlike other large cetaceans, calving does not appear to take place in distinct inshore areas (Reeves *et al.*, 2002; Jefferson *et al.*, 2008).

In low latitude of Chilean waters, fin whale sightings are almost always reported at more than 60 km off the coast and, in the vast majority of records, usually found alone or in small groups throughout the year (Clarke, 1962; Aguayo *et al.*, 1998; Hucke-Gaete, 1998) (Figure 1), although feeding behavior has recently been recorded near the Reserva Nacional Pinguino de Humboldt (29°09'S), during the summer with group sizes tended to be single individuals or small groups (Capella *et al.*, 1999; Perez *et al.*, 2006). To our knowledge Clarke (1962) provided the only recorded sighting of a large number of fin whales which occurred on the north-central Chilean coast, at a considerable distance from the coast and in a locality almost entirely unexplored by whale catchers. Here we report a sighting of a large group of fin whales in the Eastern Subtropical South Pacific Ocean and discuss the possibility that this area may represent a breeding area or the groups constituted breeding individuals.

## MATERIALS AND METHODS

This sighting was recorded by crew members aboard the yacht “Balaena”, which was sailing from Chile to the Gambier Islands, French Polynesia Archipelago in May 2010. Non scientific crew were aboard the yacht, therefore this report is based on the logbook annotations and photographs of the skipper O’Grady. The species identification was made by the first author based on the review on several photography’s provide by the skipper in 2011.

## RESULTS

The sighting was made at 21°27'S, 97°34'W (1,517 nautical miles of continental coast of Chile or 728 nautical miles to northeast of Easter Island) on the 30<sup>th</sup> May 2010. Weather conditions at the time of the sighting were optimal with a swell of 1-1.5m and a wind speed of 20 knots from the southeast. The first whales was sighted around 10:00 AM and thereafter more whales continued to approach from astern in groups of 2-3. All whales coming from the same direction, in a westerly direction. Whales continued to pass the boat until late afternoon, around 5-6 hours after the first sighting. An hour after the last whale was sighted another small group of whales (near 10 individuals) also passed within a close distance of the yacht headed in westerly direction.

The swimming speed of the whales was rapid but seemed to slow as they approached the yacht. While near the vessel, the whales swam near the surface on a very similar course to that of the yacht, at an estimated 8 knots. No prolonged diving was observed and many whales broke the surface with their heads and/or rolled on their backs and waved their fins in the air. Several animals were inquisitive swimming very close along side, astern and under the boat.

All the animals were identified as fin whales by the presence of strongly asymmetrical body pigmentation, with white lower and upper lips on the right side of the head, while the left side lips largely dark; a lightgray V-shaped "chevrons" (pointing forward) on the back behind the head, and a dorsal fin that rises at a shallow angle from the animal's back (Figure 2). No other species were sighted or photographed; anything to suggest this was only fin whales.

It was estimated that the groups passing the yacht numbered well over 50 individuals, and may have numbered more than 100. Based on sightings and photographs, no cow-calf pairs were seen. Other groups of whales were sighted in the area swimming in the same direction as the group of fin whales but because they didn't approach the yacht, the species could not be confirmed.

## DISCUSSION

The geographical range of fin whales is similar to that of other whales such as the blue whale, and although the primary feeding grounds of fin whales are generally known (*e.g.* Gunther, 1953; Mackintosh and Brown, 1956; Clarke, 1962; Mackintosh, 1965, 1966), there remains considerable uncertainty in the location of breeding areas and migration routes.

In the Southern hemisphere, it is generally thought that fin whales migrate from southern feeding areas to north during the austral winter into warmer waters to breed (Risting, 1928; Mackintosh and Wheeler, 1929; Aguilar, 2002; Jefferson *et al.*, 2008), although historical catch data suggests that not all members of the population migrate to low latitudes (Mitchell, 1974).

Data identifying breeding habits is mostly lacking. Because, unlike other species such as humpback whales, fin whales do not appear to concentrate in coastal regions during the winter to breed, and it does not appear that they are ever seen in large numbers in warmer waters during winter, unlike the summer months when large groups are seen feeding in cold waters (Mackintosh 1942). Moreover, Harmer (1928) suggests that fin whales generally disperse to deep waters during the winter perhaps spanning from tropical to sub-Antarctic waters. Only a few sightings of large groups have occurred during the winter. Wheeler (1946) recorded seeing forty fin whales in central South Atlantic waters between about 24° and 7°W (over 900 miles or more from any continental coast) along the latitude 20°S in six days from August 21st 1943, and Clarke (1962) recorded seeing eighty-four fin whales, including one concentration of 50 and another of 12 about 150 to 180 nautical miles from the shore (beyond the range of Chilean whaling land stations) and mostly between 32° to 34°S, on a cruise off the coast of Chile in October and November 1958. However, this sighting occurred at a time when fin whales were likely to be on their southward migration. Aguayo-Lobo *et al.* (1998) recorded nine groups of fin whales between 73°42'W and 88°49'W along the latitude 33°S during five winter cruises from Valparaíso to Easter Island, and in spite of most of the groups being seen beyond the continental shelf, the group size did not exceed six individuals (see Figure 1).

Our sightings, although no feeding and breeding behavior was directly observed, the large number of rorquals and geographic localization in deep water far off either continental coast would be within the expected geographical range of this species during the austral fall-winter season.

Because our sighting occurred during late May, it could represent potential reproductive groups headed toward breeding area. Although no breeding behavior was annotated in the logbook and no calves were observed in photographs, this information is consistent with our review on breeding processes provided by whalers, that although the results of estimation on breeding periods (pairing and parturition) differ slightly between the sources from which information is obtained, does not seem to be sufficiently serious to affect the main conclusion that breeding season begins in the earlier part of the southern winter, in April or May, and the height of the pairing season falls towards the end of June with young mostly being born in June and August (Harmer, 1928; Hinton, 1925; Mackintosh and Wheeler, 1929; Laws, 1959, 1961).

Given the accepted migration pattern that fin whales reproduce in low latitude in the winter season and breeding processes begins in April or May, we suggest that the geographic location of our sighting could correspond to, or to be near, of a breeding ground for this species in the South Pacific. Although our assumptions are based on a single sighting and the knowledge of breeding habits and reproductive processes is scarce, further research is needed to support our assumption. To address this question, we recommend conduct further pelagic survey and to examine the logbook of the skipper as well as satellite tagging studies given that, at least in winter, the fin whales become very much dispersed over an immense area in the open ocean of subtropical waters.

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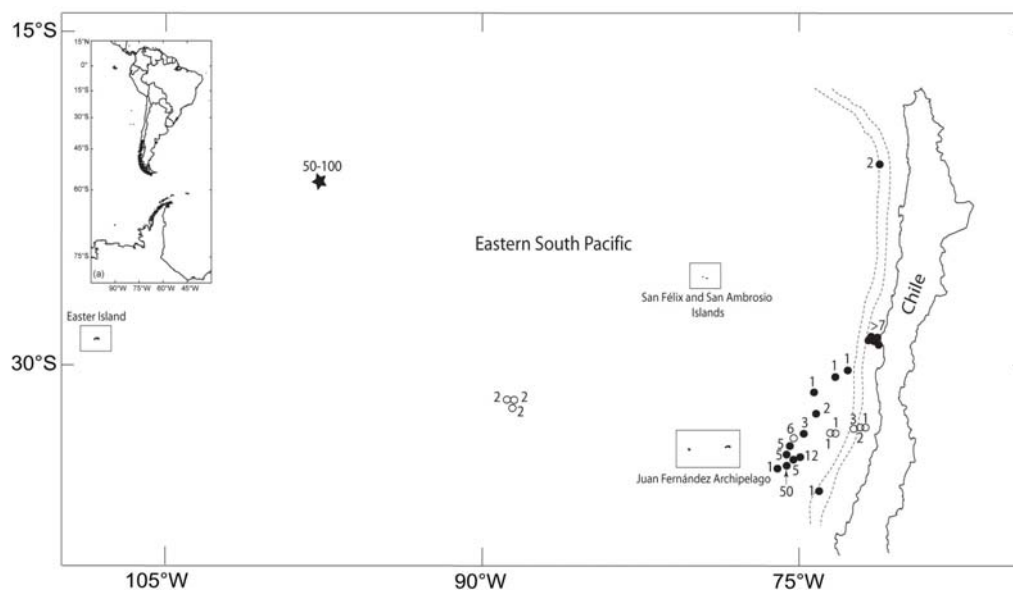


Figure 1. Sighting location of a large group of fin whales on 30 May, 2010 (star) relative to previously recorded sightings off north-central Chilean waters (circles). Previous austral winter sightings are indicated as open circles. Dotted lines are shown on the continental slope and number up each sighting represent size group.



Figure 2. Photographs of fin whales sighted at 21°27'S, Chile, on 30 May 2010. Photographs by Magnus O'Grady.