

Blue Whales off Isla de Chiloé, Chile: update of 2009 field research season of the Alfaguara Project

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In 2008 we reported on the status of blue whales (*Balaenoptera musculus*) off Isla de Chiloe, based on five years research of the Alfaguara (blue whale) Project (Centro de Conservación Cetacea). The overall annual return rate and sighting per-unit effort were calculated with data obtained from marine and aerial platforms. Results highlighted the importance of the waters off northwestern Isla de Chiloe and northern Los Lagos as a feeding area for this population and raised concerns about health conditions of the whales as well as an increased potential for vessel collision. (Galletti Vernazzani *et al.*, 2008).

Here we present additional sightings from the 2009 field season of the Alfaguara Project recorded from marine and land-based platforms. Results from aerial surveys are detailed in paper SC/61/SH21 (Galletti Vernazzani *et al.*, 2009).

From 3 February to 31 March 2009, land-based observations using 12x50 binoculars were conducted during daylight hours from a platform located 104 m above sea level (41°58' S / 74°03' W) whenever visibility was greater than 5 nm and wind speed less than 15 kt. For each whale or group of whales sighted, the time, minimum number of whales, angle and estimated distance of the whales from the coast as well as weather and sea conditions were recorded by trained observers.

A total of 150.7 h of land-based observations were collected in 24 days (\bar{x} =6.3 h/d, SD=3.2 h). The number of groups of whales sighted daily ranged from 1 to 42, totaling 357 groups with an average of 14.9 groups per day (SD=11.2; CI_{95%} =10.1 – 19.6). The number of individuals sighted daily ranged from 2 to 47, totaling 415 individuals with an average of 17.3 individuals per day (SD=13.1; CI_{95%} =11.8 - 22.8). Species identification was possible on one occasion only, when a humpback whale (*Megaptera novaeangliae*) breached at a distance of 5nm from shore with its long pectoral flippers clearly visible.

Marine surveys were conducted on good weather days within 12 nm from the coast of northwestern Isla de Chiloe, between Chacao Channel (41°45'S) and Metalqui Island (42° 12'S), on board Alfaguara's 7m research vessel. During marine surveys, photo-ID and, for the first year, biopsy samples were collected and correlated with data on group composition, behavior of whales, weather and sea conditions, associated fauna and sea surface temperatures. Position of a whale or group of whales was determined using a GPS device.

Twelve photo-identification surveys totaling 68.9 hrs were conducted between 08 February and 19 April 2009. At total of 83 blue whale groups comprised of 126 individuals were encountered. The number of whales encountered does not include animals resighted on the same day. Photographs taken during 2009 are under analysis to determine if blue whales were new or known individuals and will be reported at a later date. Additionally, we recorded one sei whale (*Balaenoptera borealis*), two groups of two probable sei whales, three groups of at least nine peale's dolphins (*Lagenorhynchus australis*) and the Projects first sighting of a group of three fin whales (*Balaenoptera physalus*) and a group of two orcas (*Orcinus orca*). Thirteen skin biopsy samples for genetic analyses, obtained from blue whales and one sei whale were preserved in DMSO. Feeding behavior and defecation were recorded for blue whales and fin whales, further documenting the importance of the waters off north western coast of Isla de Chiloe as a feeding ground for blue whale and other baleen whales in the Eastern South Pacific.

In comparison with the period 2004-2008, unfavorable weather conditions in 2009 were more frequent and limited the number of days spent on land-based observations and marine surveys. Additionally, the whales were the farthest from shore since 2004. During most marine surveys in 2009, whales were located at least 10nm from shore. However, on 7th and 8th March, eight blue whale groups were at 5nm from shore and all

other groups beyond 10nm. Therefore, the number of groups and individuals reported here are underestimated, since maximum visibility was needed during 2009 to detect whales from the land-based sighting station and our research vessel is limited to navigate to about 12nm offshore for safety reasons.

Skin biopsies for genetic studies will be analyzed at Southwest Fisheries Science Center, La Jolla California. Photo-ID information collected during the 2009 field season will be added to the blue whale catalog of the Alfaguara Project. Initiated in 2004, the catalog now contains 250 known individuals, of which 30% have been resighted between years off Isla de Chiloe.

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References

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