



Fundación Ecuatoriana para el Estudio de Mamíferos Marinos (FEMM)

**THE GALAPAGOS HUMPBACK WHALE EXPEDITION
(31 AUGUST- 10 SEPTEMBER 2005)**

PROGRESS REPORT

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Introduction

Researchers of the Ecuadorian Foundation of Marine Mammals (FEMM) conducted the expedition “Galapagos Humpback Whales” between 31st August and 10th September 2005. The main objective of this research is to determine the identity and the status of the humpback whales (*Megaptera novaeangliae*) that occurs in the Galapagos archipelago during the austral winter (June-October) for breeding. During the study other species of cetaceans as well as seabirds were recorded. The project was created by the end of 2004 as an extension of the long-term research on Southeastern Pacific humpback whales carried out by FEMM on the coast of Ecuador since 1991.

This study was authorized on 3rd December 2004 by the Undersecretary of the Environment in Guayaquil, Ecuador through letter No 000544 SGAC-MA/04 and the endorsement through letter No. 000543 SGAC-MA/04. Additionally, the Galapagos National Park issued the authorization N° PC-13-05 on 18th July 2005 and the authorization to export samples from Galapagos through authorization N° 080/05 PNG. Part of the compromise with the National Park Authority was to write a progress report by the end of the field study. A Spanish version of this progress report was submitted to the National Park by 17th September. The final report will be produced by December 2005.

This expedition was possible thanks to the support of Whale and Dolphin Conservation Society WDCS (England) and the Weyerhauser Foundation (USA).

Activities

Surveyed areas

During the study period of 10 days, surveys were conducted in the central part of the archipelago aboard four different boats: three boats with outboard engines and a 7-days trip aboard the 46-ft sailboat called “*Bronzewing*”. The surveyed areas covered seas around the following islands: west and north San Cristobal Island; east and north of Santa Fe Island; north of Floreana Island; southeast of Isabela Island; north, west and south of Santa Cruz Island; and the waters between these islands (Figure 1). The total distance covered was 742.36 km and the total navigation time was 81 hours and 16 minutes (Table 1).

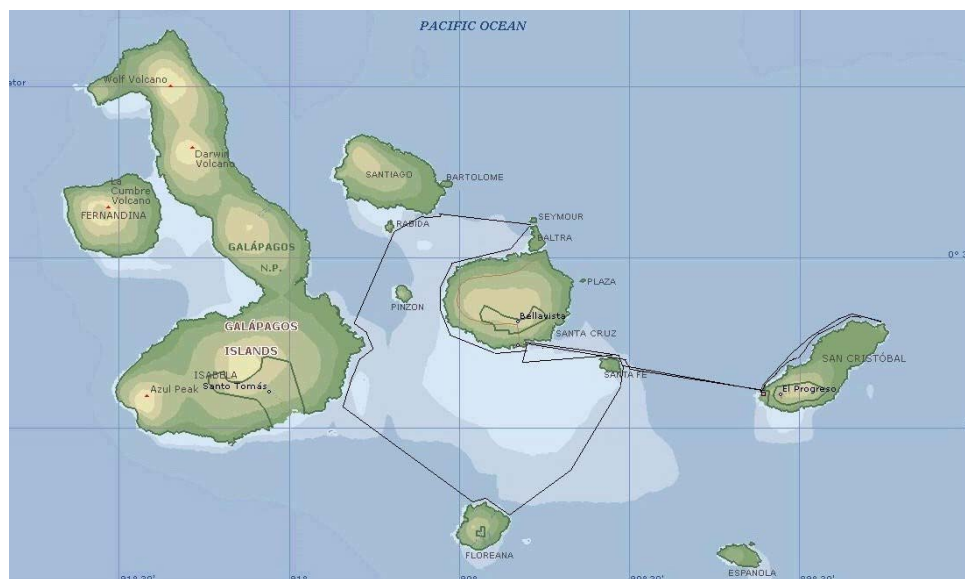


Figure 1. Track showing the surveyed areas during the Expedition “Galapagos Humpback Whales”.

Table 1. Details of the surveys carried out in Galapagos during the period 31st August - 10th September 2005.

Date	Survey area	Time	Distance
31/08/05	West and north San Cristóbal Is.	7 h 54 min	100.5 km
1/09/05	San Cristóbal Is.-Santa Fe Is.-Santa Cruz Is.	6 h 46 min	94.5 km
3/09/05	Santa Cruz Is.-Santa Fe Is.	5 h 13 min	38.6 km
4/09/05	Santa Fe Is.-Floreana Is,	9 h 15 min	72.5 km
5/09/05	Floreana Is.-Southeast Isabela Is.	11 h 50 min	91.39 km
6/09/05	Southeast of Isabela Is.-Rábida Is.	11 h 29 m	72.28 km
7/09/05	Rábida Is.-Baltra Is.	10 h 8 min	58.61 km
8/09/05	Baltra Is.- east of Santa Cruz Is.	6 h 13 min	37.63 km
9/09/05	East of Santa Cruz Is.-Puerto Ayora	7 h 43 min	93.99 km
10/09/05	Santa Cruz Is. -San Cristóbal Is.	5 h 24 min	82.36 km

Cetaceans observed

During the study period seven sightings of four different species of cetaceans were recorded: the humpback whale, and small unidentified rorquals (*Balaenoptera* sp), common dolphin (*Delphinus delphis*) and bottlenose dolphin (*Tursiops truncatus*) (Figure 2). In the case of the humpback whale, a mother/calf pair was found at Santa Fe Island, confirming that this species breeds in Galapagos and that females with calves prefer shallow water close to shore, like the humpback whale near the continent. In both cases referred as unidentified rorquals the most probably identification is minke whales *B. acutorostrata*. This is concluded because the following reasons: 1) their small size (8-12 m); 2) presence of a whitish strip behind the head known as “chevron” in both recorded groups, a feature only present in two species of rorquals: fin whales (*B. physalus*) and minke whales; and 3) white colored mandibles of the whales sighted at short distance on 4th September. Fin whales were excluded as identity for these whales because the small size and because the form of the dorsal fin. However, since not much is known about the coloration of Mysticety whales in Galapagos, it is not ruled out that recorded animals were sei whales (*B. borealis*). The position of the sighting and the number of individuals present in each group is given in Table 2.



Figure 2. Species of cetaceans sighted during the expedition: humpback whale and unidentified rorqual (top), common and bottlenose dolphin (below).

Table 2. Cetaceans sighted during the expedition.

Common name	Scientific name	Date	Position	Group size
Bottlenose dolphin	<i>Tursiops truncatus</i>	1/09/05	0°52.9'S, 89°41.8'W	2
Humpback whale	<i>Megaptera novaeangliae</i>	1/09/05	0°47.6'S, 90°05.1'W	2
Unidentified Rorqual	<i>Balaenoptera</i> sp	4/09/05	0°22.5'S, 90°32.1'W	2
Unidentified Rorqual	<i>Balaenoptera</i> sp	5/09/05	1°09.9'S, 90°41.3'W	2
Common dolphin	<i>Delphinus delphis</i>	5/09/05	1°06.5'S, 91°00.3'W	100-150
Bottlenose dolphin	<i>Tursiops truncatus</i>	7/09/05	0°22.5'S, 90°32.1'W	10-20
Bottlenose dolphin	<i>Tursiops truncatus</i>	10/09/05	0°50.2'S, 89°51.0'W	20-30

Obtained Samples

In order to get a skin sample, arrows with a modified head were fired with a crossbow. Only two animals were biopsied, the female humpback whale and a bottlenose dolphin (Figure 3). Samples were preserved in plastic containers with a solution of DMSO saturated in NaCl for future analysis of molecular biology.



Figure 3. Skin biopsy of the humpback whale female.

Photoidentification

It was only possible to take photos of the dorsal fin of the humpback whale found at Santa Fe Island. As occurs with continental whales, females with calves usually do not raise the tail in shallow waters. Available photos will be compared with dorsal fins of continental whales from the FEMM catalogue looking for a match.

In the case of bottlenose dolphins, photos of the dorsal fins of six different individuals were obtained. With these photos a catalogue has been created and will be available for future studies of this species in the archipelago.

Sound recording

Another goal of the study was to record humpback whale male sounds. For this purpose a hydrophone and a digital recorder were used (Figure 4). Although the hydrophone was dropped in 26 different sites no sounds were heard during the entire survey. This also confirms that the density of breeding humpback whales must be low.



Figure 4. Listening for humpback whale sounds.

Seabirds recorded

During our search for cetaceans also special attention was also paid to the birds (Figure 5). Besides the commonly observed seabird species there were no new findings, but for the following species it could be worth making these comments:

Pterodroma phaeopygia - Dark-rumped Petrel.

They were seen on almost every crossing or near the islands where we stayed anchored or passed by. Concentrations of dozens of birds were observed off Southwest Isabela, Santa Fe, Santa Cruz and along the Northwest coast of San Cristobal.

Oceanodroma markhami/melania - Markham's Stormpetrel and Black Stormpetrel

A larger all brown stormpetrel was observed on 1 Sept between San Cristobal and Santa Fe. The two species are too much alike to make a correct identification.

Phaethon aethereus – Red-billed Tropicbird

Commonly observed between the islands and near breeding colonies along cliffs. A concentration of at least 11 birds was observed around Daphne Minor on the 7 Sept.

Sula sula – Red-footed Booby

A flock of 300 to 400 feeding boobies was observed near Las Cuevas on Floreana on the 4th September. There were at least 50, maybe up to 100 Red-footed boobies of both color morphs joining Nazca and Blue-footed Boobies.

Phalaropus lobatus – Red-necked Phalarope

This was probably the most numerous species during the survey. A few individuals were seen in the calm waters north of Santa Cruz and Santa Fe, but flocks of sometimes more than a thousand birds were found in upwelling areas or where current mixed. No exact counts were made, but the total number of observed birds must be around 40.000 to 50.000 birds. Many were seen flying in southerly direction, and it is not clear what percentage of the birds stays for the winter. This will be important to know for future studies in the region, because the species' population is known to be decreasing.

Phalaropus fulicarius Red Phalarope

This species is far less common than the Red-necked Phalarope. Identification at sea is difficult, and usually only can be done when the birds pass by at close range. Many phalaropes were observed at short distance from the bow, but most mostly the Red-necked, and in about seven or eight occasions good view allowed the identification of the Red Phalarope (of which some confirmed by photographs).

(N.B.: On a visit to Dragon Hill (Santa Cruz Island) on 26 th August, 2 Wilson's Phalarope *Phalaropus tricolor* were observed in a lagoon)



Figure 5. Some Galapagos seabird: Red-billed Tropicbird, Red-footed Booby, Red-necked Phalarope