

Project Update: October 2008

Until today the some unexpected outputs of the project of false killer whales and killer whales in the area are:

1- 16th Biennial Conference on the Biology of Marine Mammals, San Diego Dic 12 - Dic. 16, 2005. "Occurrence of *Pseudorca crassidens* in the pacific coastal waters of Costa Rica"

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The distribution of the False killer whale (*Pseudorca crassidens*) extends from tropical to temperate waters in the Indian, Pacific and Atlantic Oceans and the Mediterranean Sea. In Costa Rican waters False killer whales have been reported in the Pacific and the Caribbean territorial waters. False killer whales reports are particularly concentrated in the South Pacific of Costa Rica, specifically along the coast of Drake-Bay, in Golfo Dulce, and Cocos Island. Despite of these observations, there has not been any systematic study to determine the status of these dolphins in Costa Rican waters. Therefore, the purpose of this study is to provide a first glimpse in the status of False killer whales in the protected waters of Caño Island, Costa Rica. Following monthly strip-transects the area was surveyed from December 2004 to date (June 2005). Survey effort was 168 hours (24 days). A total of four sightings were made in January and February (16% of the number of days). The average group size was 13.2 ± 4.7 individuals. Twenty-five animals were photo-identified. The predominant behavior was traveling (64%), followed by feeding-foraging (23%). January and February are dry months characterized by an increase in water productivity. The abundance and behavioral patterns of other two common delphinid species (*Stenella attenuata* and *Tursiops truncatus*) appear to vary seasonally in the Costa Rican Pacific waters, reaching a peak in abundance and bias towards foraging activities during these dry months. It is possible that False killer whales occurrence may be also associated with the seasonality of the area.

2- Primera Reunión Internacional sobre el Estudio de Mamíferos Acuáticos SOMEMMA-SOLAMAC Mérida, Yuc. MÉXICO, 5 al 9 de noviembre 2006". Presence of orcas (*Orcinus orca*) in Costa Rica: possible seasonal occurrence in tropical pacific waters

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Orca is one of the few species of cosmopolitan cetaceans in the world. Its abundance varies between regions but it tends to be greater in high latitudes. In the tropics information on *Orcinus orca* is very limited. Some studies in Hawaii exist, although not comparable to those from Europe, North America, Argentina, Crozet Islands or New Zealand. In its Exclusive Economic Zone (EEZ), Costa Rica has a high diversity of Cetaceans, representing almost 35% of the world's cetacean species. Research has been focused on the most common species, like *Tursiops truncatus*, *Stenella atenuatta* and *Megaptera novaeangliae*, but not including the

Orcas. The objective of the present study is to explore possible seasonal patterns of orcas in the Pacific of Costa Rica. For this, we included information from sightings and strandings of Orcas between the years 1992 and 2004, from literature, personal comments and our own observations. We analyzed a total of seven reports of Orcas in Costa Rica. 28.5% of the data correspond to the northern pacific of Costa Rica, while 71.5 % are from the south. Not including the sighting close to the Costa Rica dome (22 individuals), the average number of individuals per group was 3.5 (sd= 1.39), with 28% of the groups with juveniles. During all of the sightings, foraging behaviour was observed. The total of the reports from the north occurred during the rainy season (May- Nov), contrary to the observations from the south pacific, which corresponded to the dry season (Dec-Apr). These data suggest that the presence of *Orcinus orca* in Costa Rican waters may be associated with seasonal factors or the presence of humpback whales with calves during this particular season. The obtained data could vary in the future, since we started a systematic study on the presence of orcas in Costa Rican waters since 2005.

La orca es una de las pocas especies de cetáceos cosmopolitas en el mundo. Su abundancia varía entre zonas pero tiende a ser mayor en altas latitudes. En los trópicos la información que se posee de *Orcinus orca* es muy escasa. Existen algunos estudios en Hawai, pero nada comparables con los realizados en el norte de Europa y América, Argentina, islas Crozet o Nueva Zelanda. Costa Rica posee gran diversidad de cetáceos en su zona económica exclusiva (ZEE), cerca de un 35% de la especies de cetáceos en el mundo. Los esfuerzos de investigación se han dirigido a especies más comunes como *Tursiops truncatus*, *Stenella attenuata* y *Megaptera novaeangliae*; dejando por fuera a la Orca. El objetivo de este trabajo es explorar posibles patrones de estacionalidad de las orcas en el pacifico de Costa Rica. En este estudio recopilamos información de avistamientos y encallamientos de *O. orca* entre los años 1992 y 2004 de fuentes literarias, comunicaciones personales y observaciones propias. Se analizó un total de siete reportes de orcas en Costa Rica. El 28.5% de los datos pertenecen a la zona norte del pacifico de Costa Rica, el resto son de la zona sur (71.5%). Descartando el avistamiento de 22 individuos cerca del domo térmico de Costa Rica, el numero medio de animales por grupo fue de 3.5 (sd= 1.39). En el 28 % de los grupos hubo crías. Todos los avistamientos de orcas vivas presentaron comportamiento de alimentación. El total de los reportes en el norte ocurrió en la época lluviosa del país (Mayo-Noviembre), en contraste con los avistamientos de orcas para la zona sur, los cuales se dieron durante la época seca (Diciembre-Abril). Nuestros datos sugieren que la presencia de las orcas en nuestras costas puede estar asociada a factores estacionales o bien a la presencia de ballenas Jorobadas con crías durante esta época particular. Debido a que se ha iniciado un estudio sistemático de la ocurrencia de orcas en aguas costarricenses desde el año 2005, los datos pueden variar.

3- 17th Biennial Conference on the Biology of Marine Mammals, South Africa Nov 26 - Dec. 5, 2007. Evaluation of photo-ID techniques success in *Pseudorca crassidens* from coastal waters of Costa Rica

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The false killer whale inhabits tropical and temperate waters around the world, and is observed occasionally in Polar Regions. False killer whales are very social, a characteristic that may give rise to groups of up to 100 members. In the Pacific coast of Costa Rica, false killer whales are observed regularly along the coast, but studies have focused on other cetaceans (*Tursiops truncatus*, *Stenella attenuata graffmani* and *Megaptera novaeangliae*). The goal of this study is to provide preliminary information on the status of this species in Costa Rican waters based on photo-ID data. Because the photo-ID technique is considered an accurate method to estimate basic cetacean population parameters, we evaluated this technique in false killer whales. The study took place in Caño Island and Drake Bay, in the south Pacific of Costa Rica. The area was boat surveyed from December 2004 to April 2006 monthly. Survey effort consisted of 481 hours in 51 days, covering in average a total of 211 km². Average sighting success was 0.038 sightings per hour. A total of 18 sightings were made only in the dry season, comprising a total of 615 animals in groups. Group size was 50 individuals (C.V. 42.63). In seven of the encounters 571 pictures were taken, 56% were used for analysis. We have photo-identified a total of 83 animals, nine of which were resighted in more than one occasion. Although *Pseudorca crassidens* is not the most common species in the Pacific coast of Costa Rica, photo identification data suggest the recurrent use of the study area by several individuals. Furthermore, 23 % of the animals showed marks and notches that will allow future estimations of population size and movement patterns.

Posters

