RUFFORD MAURICE LAING FOUNDATION
RUFFORD SMALL GRANT FOR NATURE CONSERVATION
(RSG) annual report

Occurrence and behaviour of three species of large dolphins in the Pacific coast of Costa Rica; and reaching of the whale watching in two different communities

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PERIOD COVERED IN THIS REPORT:
May 2005 to January 2006

March, 2006

Back ground

In the 80´s Janzen and Wilson (1983) published the first list of Costa Rican cetaceans; they include only 7 species for both oceans. Today, there're about 28 species of cetaceans reported and expected in Costa Rican waters. In the last 10 years three resident species have been considerable studied: the bottlenose dolphin (*Tursiops truncatus*) the coastal spotted dolphin (*Stenella attenuata graffmani*), and the humpback whale (*Megaptera novaeangliae*). May *et al.* 2004, reported the first distribution maps for cetaceans in Costa Rica and confirmed the presence of 19 cetacean species in the Pacific Exclusive Economic Zone (EEZ) of Costa Rica.

All this suggest that these animals may be using Costa Rican waters to feed, but we do not know if it occurs throughout the year or as a respond to seasonal variations of the environment. The establishment of proper conservation and management to protect marine mammals in Costa Rica is urgent. Without baseline data it is impossible to develop a conservation and management plan for cetaceans, without baseline data we can not asses if a population is affected directly or not by fisheries, habitat degradation, vessel noise or climate change.

Objectives

1- Determine the occurrence of *Orcinus orca, Pseudorca crassidens and Globicephala macrorhynchus* seasonally in Cuajiniquil (North Pacific) and y Drake Bay (South Pacific), during twelve months in coastal waters of Costa Rica.
2- Determine the perceptions, attitudes and knowledge of local coastal people in relation to cetaceans

Advances

Between May of 2005 and Jan of 2006 I made around 247 hours of sampling (field work). Its divide in this way:

1- 125 hours in Drake Bay
2- 122 hours in Cuajiniquil.

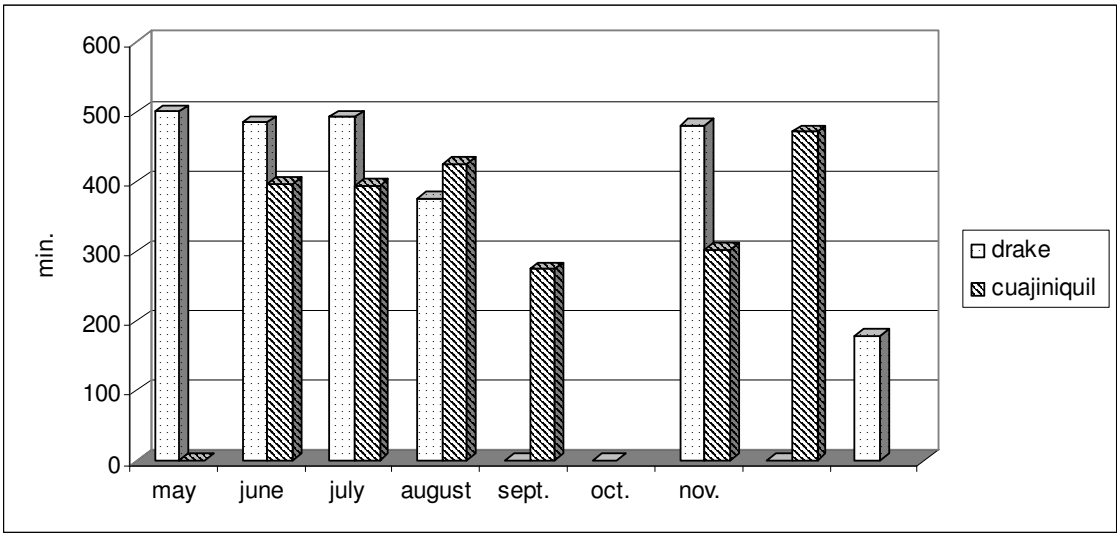


Fig 1. Hours of field work during the months

Until now we have problems with the weather. The indirect effects (marine instability) of the hurricanes Katrina and Wilma over the Pacific coast of Costa Rica during October and September (2005) cant allow us make fieldwork.

In Drake Bay we cover around de 1.470 km² by month (40 hp 4 strokes) and 263 km² by month (70 hp 2 strokes) in Cuajiniquil

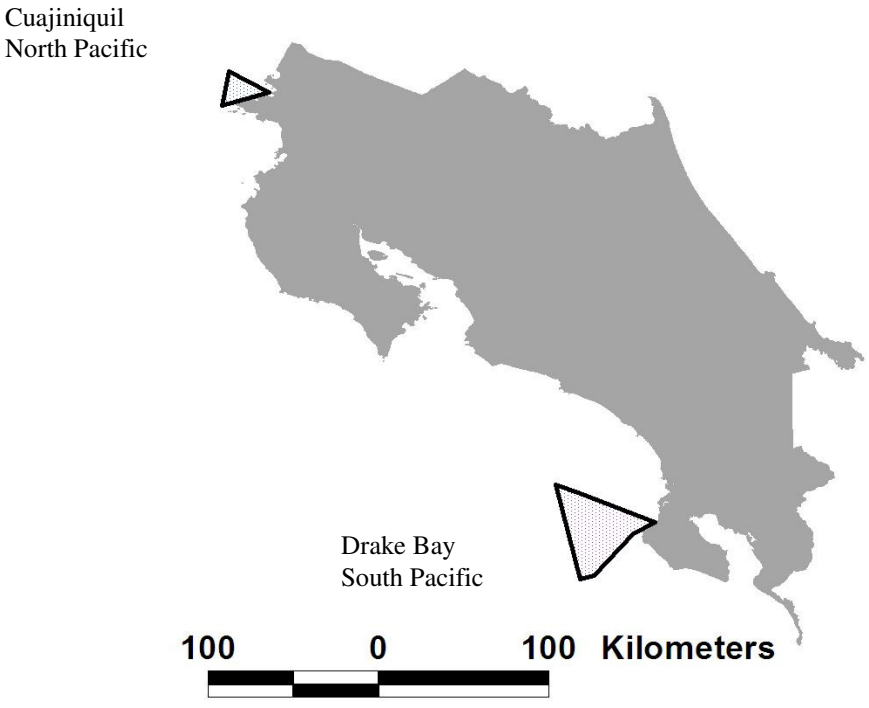


Fig. 1. Sampling area. Average by month

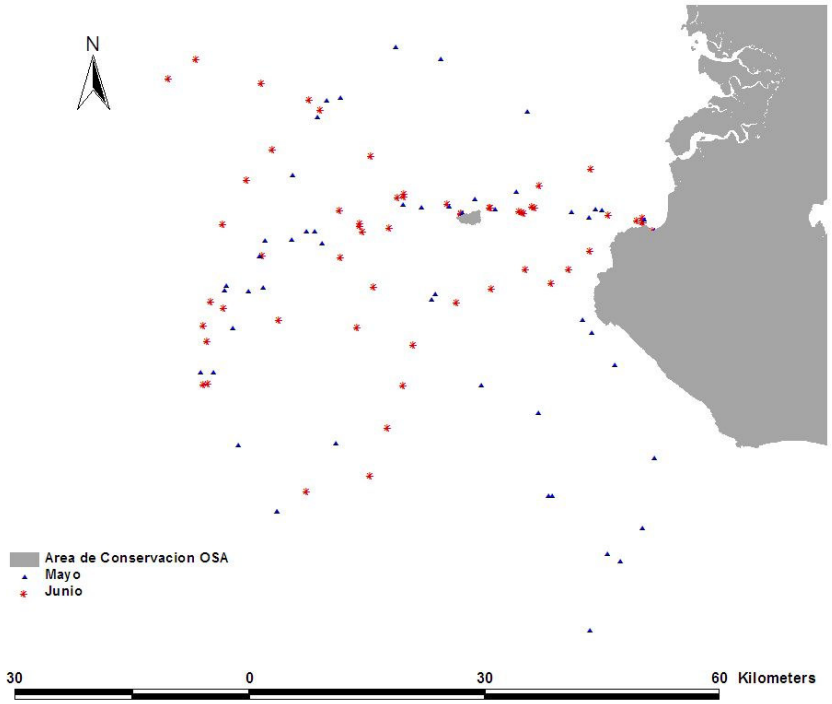


Fig 2. Sampling points during May and June 2006 near Drake Bay (South Pacific)

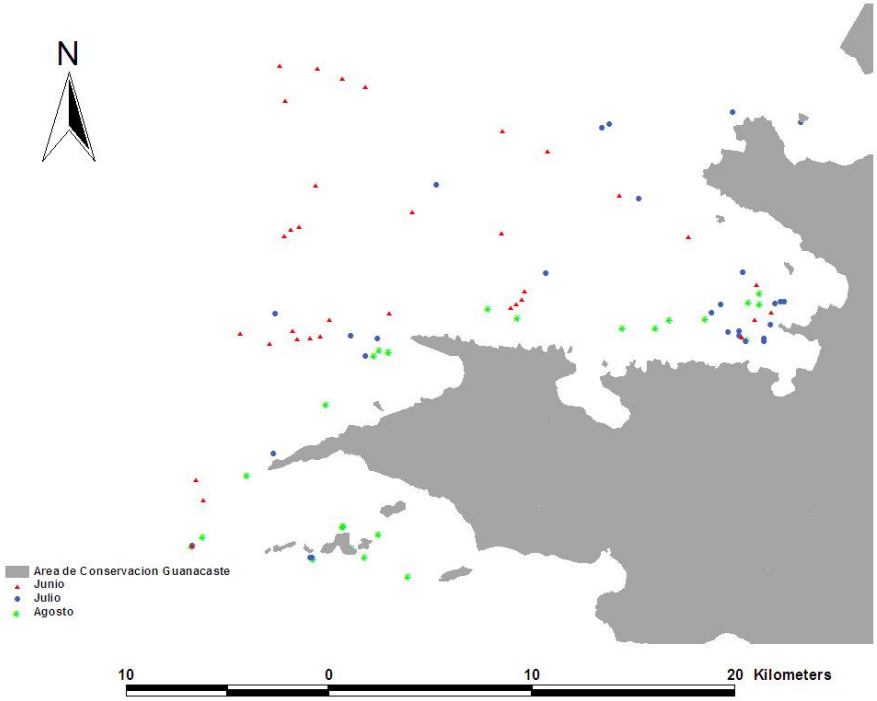


Fig3. Sampling points during June-August 2006 near Cuajiniquil (North Pacific)

Sightings during May 05– January 06 in two different zones of Costa Rica

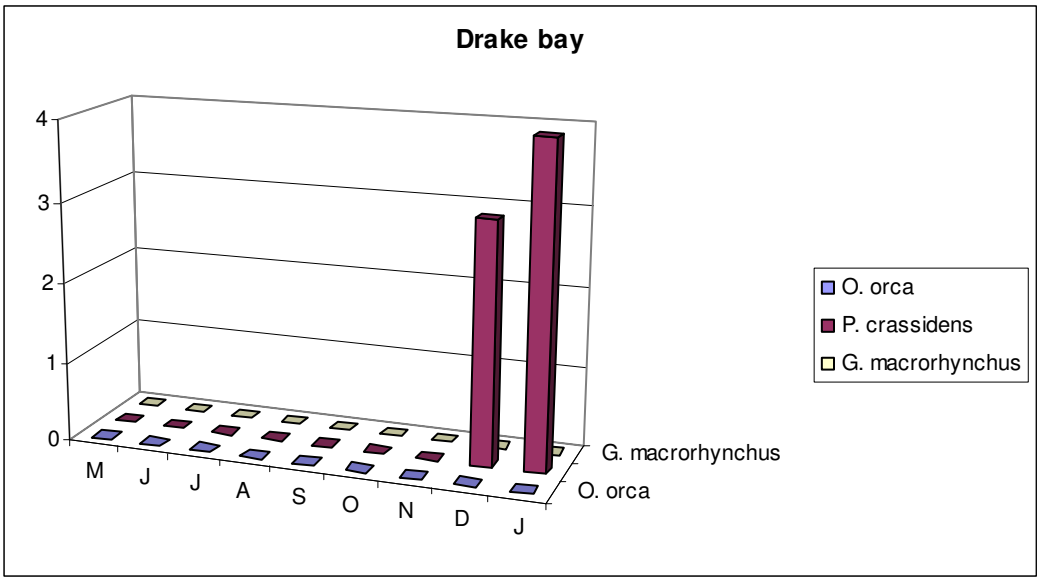


Fig 3. Drake bay's number of sightings during May05-Jan06.

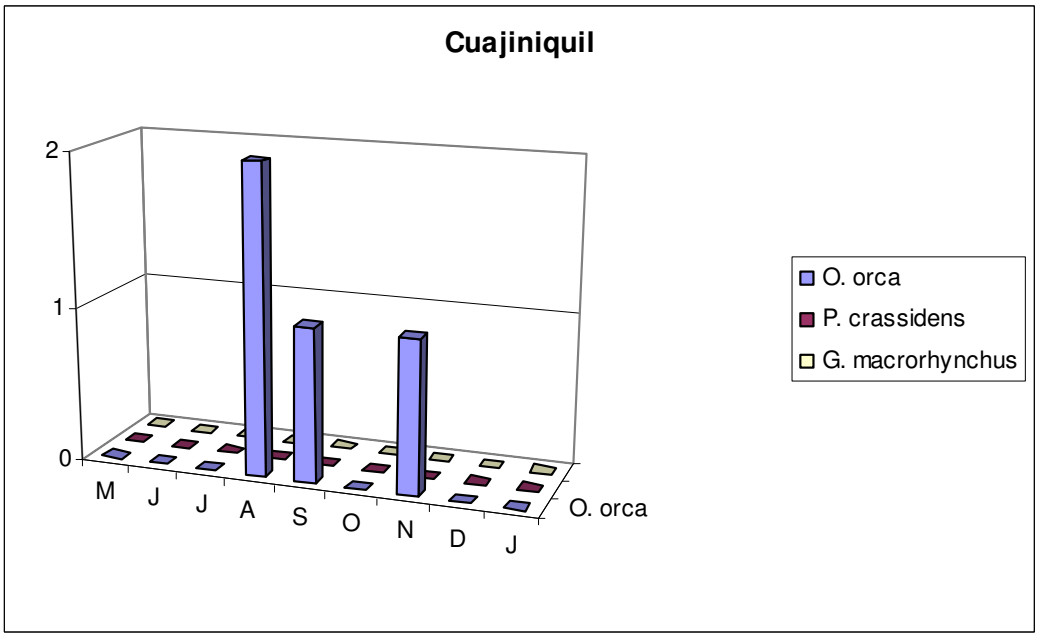
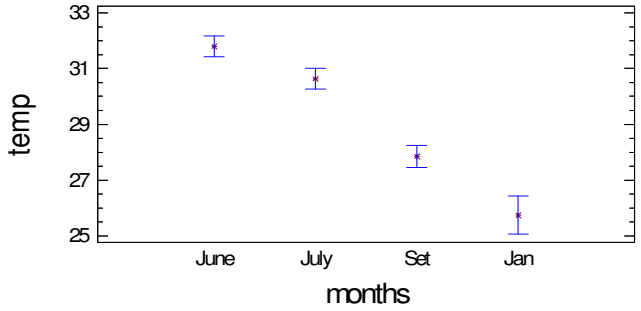
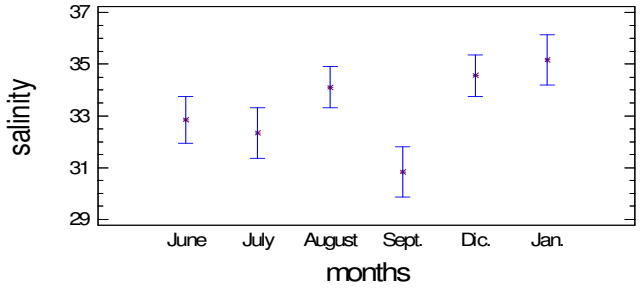


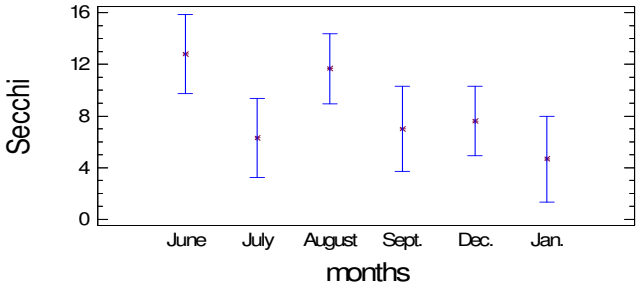
Fig 4. Cuajiniquil´s number of sightings during May05-Jan06.

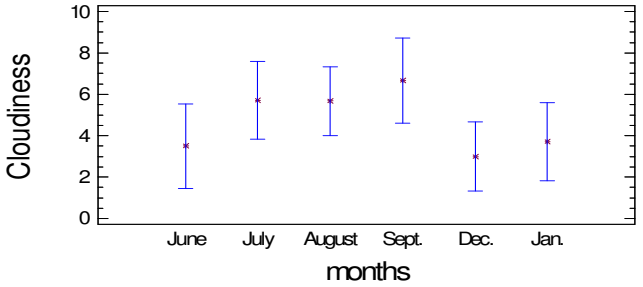
To determine the occurrence of the dolphins we take some physic variables. Each measurement was taken 3 times at day

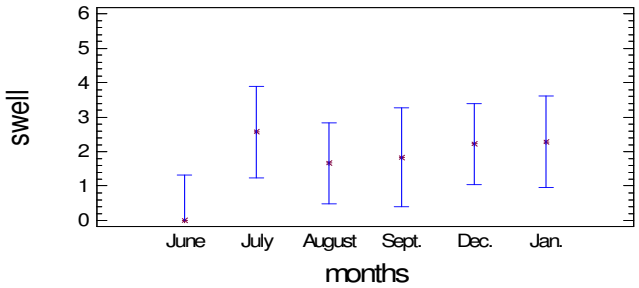
CUAJINIQUIL´s DATA



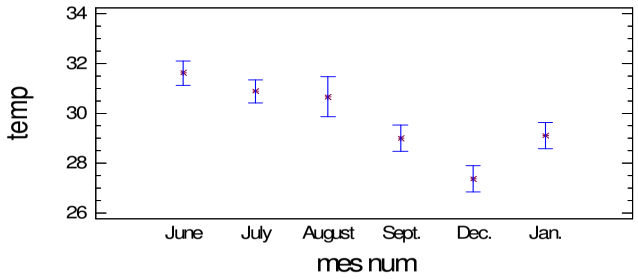


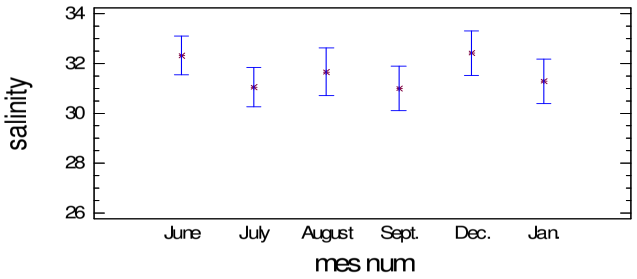


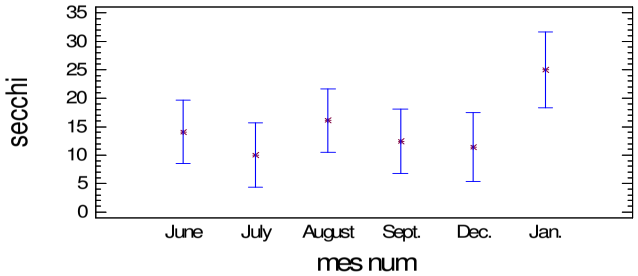


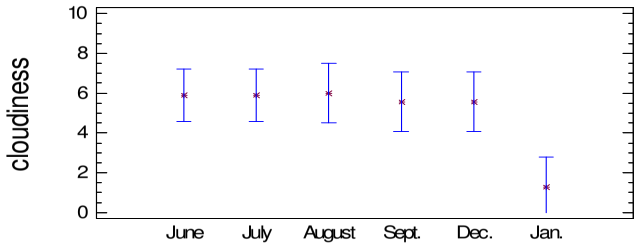


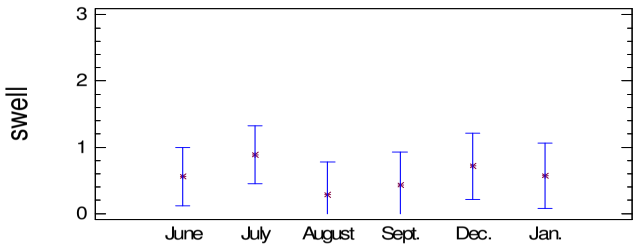
DRAKE BAY´s DATA











Scientific Outputs

- **Photo catalogue (*Pseudorca crassidens*)**

  At least 1 photo catalogue will be develop with the encounters during summer in Drake Bay

There is some examples of the catalogue:






- **We trained undergraduate students in the field work**

Some Costa Rican students of Biology School: National University and Latin University. The training in this area its important cause here we don t have enough people working with cetaceans.


Elena from Latin University of Costa Rica. Our Captain in Cuajiniquil

David from National University. He works very hard

- **Congress assistance: 16th Biennial Conference on the Biology of Marine Mammals, San Diego Dec 12 - Dec. 16, 2005**

For this congress we participated with a poster called "Occurrence of *Pseudorca crassidens* in the pacific coastal waters of Costa Rica" Here's the abstract and a copy of the poster.

Occurrence of *Pseudorca crassidens* in the pacific coastal waters of Costa Rica

Damián Martínez-Fernández (1, 2) Andrea Montero-Cordero (2,3) Laura May-Collado (2,4) John Calambokidids (5)

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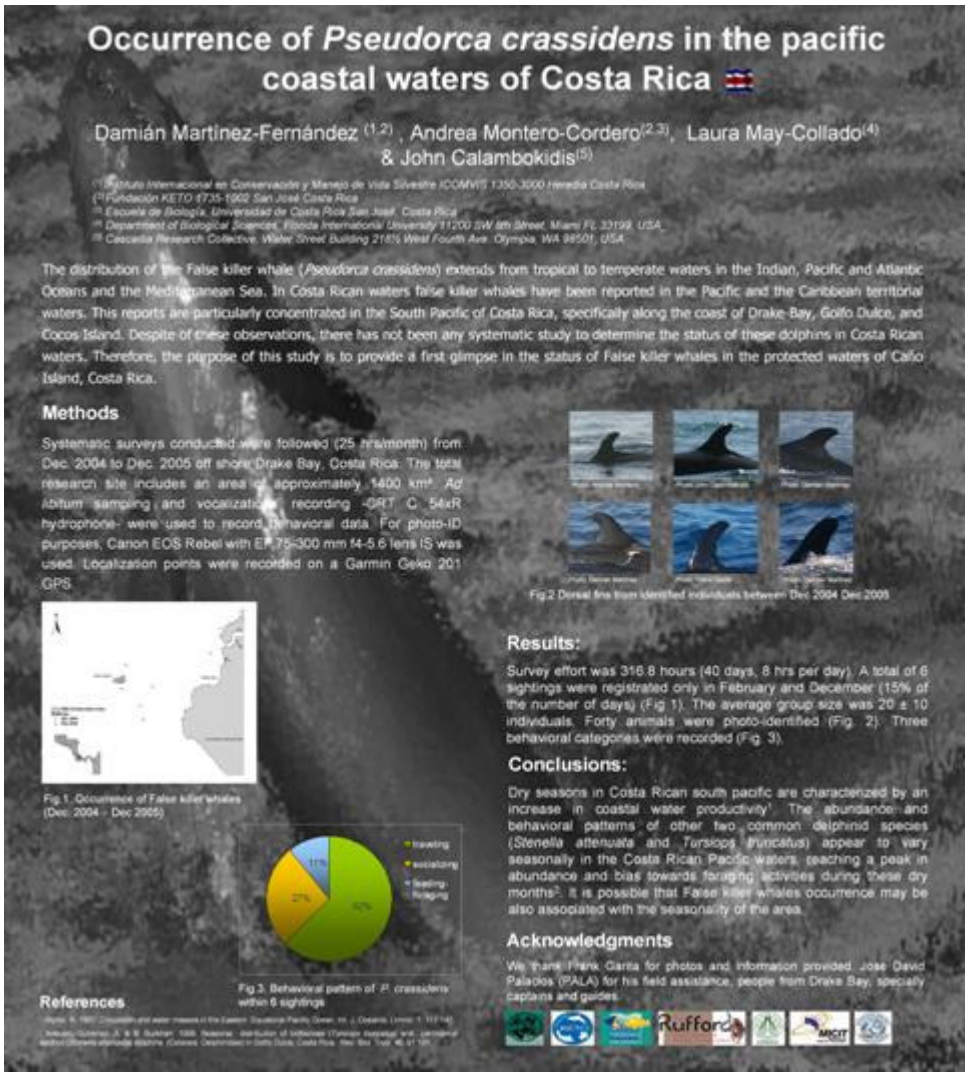
(2) Fundacion KETO 1735-1002 San José Costa Rica
(3) Escuela de Biología, Universidad de Costa Rica San José, Costa Rica
(4) Department of Biological Sciences, Florida International University 11200 SW 8th Street, Miami FL 33199, USA_
(5) Cascadia Research Collective, Water Street Building 218½ West Fourth Ave. Olympia, WA 98501, USA

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.

Martínez-Fernández, D., A. Montero-Cordero, L. J. May-Collado & J. A. Calambokidis. 2005. Occurrence of Pseudorca crassidens in the pacific coastal waters of Costa Rica. 16th Biennial Conference on the Biology of Marine Mammals, San Diego. Dec. 12 - Dec. 16, 2005.



Conservation and Management Outputs

- **Development of workshops and communities chats.**

In conjunction with Andrea Montero Cordero (Rufford`s awarded), KETO Foundation and Marviva (Costa Rican NGO) we coordinated workshops in the community of Drake Bay. The most important one was related with new Costa Ricans Cetaceans Regulations. About 40 captains, guides and hotel owner assisted. The success of the activity gives us the opportunity to go on in other communities.

Here I am explaining the workshop

Some people

Andrea Montero

David Sequeira (Mar Viva)

More people

Some material that we made for the community

Financial Report

Zone		May	June	July	August	Sept.	Oct.	Nov.	Dec.	January	TOTAL
Drake bay	Meals	€72.67	€51.94	€53.25	€66.91			€29.67	€17.71	€59.42	€351.57
Drake bay	Room	€86.62	€54.35	€64.54	€53.69	Can't sample	Can't sample	€55.08	€10.42	€40.20	€364.89
Drake bay	Transportation	€45.77	€49.08	€55.06	€54.40			€56.80	€41.67	€16.08	€318.86
Drake bay	Boat /captain	€385.6	€387.23	€390.49	€325.50			€406.47	€103.13	€288.11	€2286.5
Cuajiniquil	Meals		€41.67	€74.22	€53.65	€56.99		€45.51	€37.41	0.00	€309.46
Cuajiniquil	Room	Can't sample	€47.55	€40.76	€40.27	€41.03	Can't sample	€36.91	€55.56	0.00	€262.08
Cuajiniquil	Transportation		€14.22	€6.74	€14.04	€10.91		€15.22	€9.72	€10.69	€81.55
Cuajiniquil	Boat /captain		€289.81	€289.81	€292.95	€196.58		€288.59	€298.61	€82.24	€1738.5
TOTAL		€590.66	€935.84	€974.88	€901.42	€305.51		€934.26	€574.22	€496.74	**€ 5713.52**

- These expenses cover 5 days of fieldwork of 2 persons.
- The months without expense was October, and some days of September. The weather was really bad
- My last expenses are fewer cause I share expenses.

*** NOTE: This financial report include until January of 2006, I need to process February, March and make some fieldwork in April and May of 2006**