

# Weekly Summary of Humpback whale and Odontocete species survey along the Osa Peninsula, Costa Rica

Oceanic Society Research Expeditions, Elderhostel and Cascadia Research

Dates: 26 January-2 February  
2009

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## OPERATIONS

Oceanic Society/Elderhostel participants assisted with all parts of the research effort both on the water and on land. Research duties included scanning for whales, dolphins, turtles and bird flocks, identifying species and making group size estimates of species encountered, recording data, and using hydrophones to detect and record whale song. Some participants had the opportunity to take photos of whales and dolphins with the project camera, and others have kindly shared copies of their photos with Cascadia and Oceanic Society. Participants also compared images of humpback identification fluke photos obtained in the field to the existing Central America humpback id catalog. An unexpected stranding of a false killer whale provided participants with the unusual opportunity of observing and recording data on the necropsy.

All proposed survey area was covered with effort concentrated along the coast near Drakes Bay and in the core area (between Drakes Bay and Isla Cano). Surveys farther north, south and offshore of the core area were conducted towards Quepos, Golfo Dulce and offshore of Isla Cano on different days.

Five different vessels were used for these surveys, *Sea Rod*, *Paraiso III*, *Paraiso IV*, *Dyanne II* and *Dyanne I*. All vessels were in good working order, and quite comfortable despite a few rougher sea conditions on a few afternoons. We had three different boat drivers, with Jose GaGuardi as primary driver throughout our time at Drakes Bay. All drivers were conscious of their passengers, and the drivers with less experience made use of the opportunity to practice driving around marine mammals safely while out with our group. One reminder for next year, would be to always make sure that the swim ladder (for exiting the water when swimming off the boats) is the ladder with four rungs, the two rung ladder was a challenge for even the most agile among us.

Presentations were given every night after dinner, with one evening saved for evaluations and another for practicing matching humpback flukes obtained over the project to the existing Central America catalog. Presentations were designed to outline current research projects being conducted in Costa Rica, as well as discuss the current status of humpback whales in the north Pacific. Research biologist Robin Baird also gave lectures that covered current research techniques (satellite and radio tagging, prey sampling and biopsy) of free-swimming marine

mammals. Additionally, Robin described ongoing research projects on false killer whales and killer whales in Washington and Hawaii states, both these species are of special interest since they are also found off Costa Rica.

### Equipment

Despite the general challenges with the directional hydrophone, all our acoustic equipment worked well by the end of the project. The handheld radios for communication between boats never worked very well, however, the boat that was to travel farther each day was able to use externally powered marine radio, which was capable of hailing the Drakes Bay Wilderness Resort if not the other boat. In future we should make sure that the radios onboard both boats are capable of calling the Resort and communicating with each other.

## RESEARCH

### Humpback whales

Over the six days of survey effort including a few days of two-vessel effort there was a total of 1041 km covered over 62 hours (Table 1) (Figure 1). There were five humpback whale encounters and a total of 13 whales (Figure 2). The encounter rate for this week was 0.20 whales per hour. We encountered the same cow/calf pair with at first one male escort and then two on at least three occasions. We observed intense competitive behavior from the escorts of the cow/calf pair, with forceful/loud exhales upon surfacing, jostling, and “excessive” splashing at close proximity to each other. It appeared that the escorts had been making physical contact with their rostrums, for both animals were missing tubercles that had clearly been rubbed off recently. The whales also had shallow scrape wounds on their dorsal fins, where they had probably hit against each other. The second cow/calf pair that we encountered where in close proximity to a group of false killer whales, it was not clear if the fast travel exhibited by the pair was due to the presence of the false killer whales or in reaction to the tour boats which seemed to be following them fairly close. A single, singing whale was photographed on our southernmost circuit in Golfo Dulce, neither he nor any of the two other whales that we photo id’d matched the Central America humpback id catalog. We will compare these three flukes to the larger catalog of humpbacks photographed along the US west coast, and compare the calf fluke to whales that are encountered along the the US west in this summer and onward.

### False killer whales

False killer whales were encountered on five occasions and we observed an estimated 98 animals. Although we recorded group sizes of about 25 animals, it is very likely that the animals were in a larger and more spread out group than we could track. We were able to obtain id photos of a majority of the animals as well as photographs of the false killer whales feeding on at least three species of fish. The identification photographs of the live animals that we collected over the two weeks will be compared to each other, and then we will compare them to id photos of false killer whales from other years in the same area.

Sadly, on the last day that we observed false killer whales one of the animals stranded alive south of Drakes Bay. The observers of the animal were unable to assist it back into the water, and the animal died among the rocks. The following day we were notified of the animal, and we obtained permission from the Stranding coordinator in Costa Rica to perform a necropsy

on the carcass. The animal was a male and from total length measurement (310 cm) we estimated that it was a juvenile, about three years old. Despite the fact that the whale had only been on the beach for 24 hours or so, it was in an advanced state of decomposition by the time that we responded, and we did not attempt to collect more samples than blubber and skin. We tried to take good photographs of the entire body, in hopes that we would be able to compare photographs of the dorsal fin to animals that we had seen on the days previously, but this endeavor was complicated by the fact that all the skin had already sloughed off the animal and it was difficult to tell if we were seeing the animal's natural markings, or if we were seeing injuries that the animal incurred when it stranded on the beach. As with all strandings, hopefully something positive can come out of this event. Frank Garita collected the teeth so that they can be used for aging, and we collected the entire head of the animal and put it in a hole near the resort where it will hopefully be cleaned by ants and other insects. Frank and others will return in a few months, dig up the head and transport it to a lab where it can be studied and used for education, perhaps at the University in San Jose.

Strandings of false killer whales are unusual; however this species and perhaps this same group of individual animals have been encountered numerous times over the years along southern Costa Rica. Oceanic Society and Cascadia Research encountered a small group of false killer whales off Drakes Bay January 2008, and they have been recorded on earlier surveys in 1996, 1998, 2000 and 2003. During the 1998 encounter one of the whales was observed sharing a red rockfish with a nearby animal from the group (Rasmussen et al. 2004).

False killer whales are typically found in the tropical to subtropical oceans and are generally observed in offshore waters, however they are observed frequently along the coast of Costa Rica. Interactions with tour boats are not uncommon and individual animals with distinct dorsal fins have been recorded returning to this area again and again. Despite the fact that they are sighted fairly regularly little study has focused on this group of animals. In other parts of the world, this species has been shown to interact with fisheries and there is a current concern that the fisheries around the Hawaiian Islands compounded with fairly high toxin loads and slow reproductive rate may be partly responsible for elevated mortality for this species over the last 20 years (Reeves et al. 2009).

#### Other species

We encountered spotted dolphins on every survey day except for the last day. There were a total of 23 encounters of spotted dolphin and an estimated 125 individuals. We observed spotted dolphin calves on a few occasions, and encountered many juveniles throughout the groups. We recorded 21 Olive Ridley turtles, however this number may be a little low, since we tended to overlook the turtles when there was another higher priority species that demanded our attention.

#### Summary of two weeks survey work out of Drakes Bay, Costa Rica

We are thankful to the participants of both weeks working out of Drakes Bay with Oceanic Society, Elderhostel and Cascadia Research. Over that time period we covered 2107 km of trackline (Figure 4) and had eleven humpback whale encounters. Humpback whales were observed in all the areas that they have been encountered in past years (Figure 5). Cows and calves tended to be encountered closer to the coast and islands, except when they had male escorts. Whale song was recorded in Golfo Dulce as well as along the Osa Peninsula and between Drakes Bay and Isla Cano. All false killer whale encounters were near the coast, and seem to coincide with high density of bill fish and turtles (Figure 6). The photographs of both

species will help document individual animal's migration movements and reproductive rates as well as help assess injuries that could be caused by fishery or tourism.

**Group leaders:** Frank Garita and Annie Douglas

**Evening Presentations:** Robin W. Baird

**Elder hostel participants:** Mary V. Anderson & Jeffrey S. Harris, Jean Griswold, Bertha (Robbie) M. Harte, Albert R. Hermann & Betty M. Mahjoub

**Primary Boat drivers:** Jose GaGuardi (Chino/Jose), Arnolando Samudio Quintero (Tico), Freddy & Edwin

Table 1. Summary of vessel effort for cetaceans out of Drakes Bay, Costa Rica. 26 January-2 February 2009. Oceanic Society and Cascadia Research.

Date	Vessel	Start time	End time	Off effort hrs	Total search hrs	Tot # sight	# of humpbacks enc.	Other species enc.	Notes on effort
01/26/2009	<i>Dyanne I</i>	07:23	16:00	0:24	8:13	4	0	False killer whales and spotted dolphins	Full day. Follow up on reports of killer whales north
1/28/2009	<i>Sea Rod</i>	7:27	15:19	0:41	7:11	2	2	False killer whales	Full day. Survey north Isla Ballena
1/28/2009	<i>Dyanne II</i>	7:36	15:00	0:30	6:54	3	3	Spotted dolphins	Half day. Isla Cano
1/29/2009	<i>Sea Rod</i>	6:30	17:38	0:18	10:50	6	1	False killer whales and spotted dolphins	Full day. Golfo Dulce
1/29/2009	<i>Paraiso III</i>	7:18	13:54	0:30	6:06	6	3	False killer whales and spotted dolphins	Half day. South and Isla Cano
1/30/2009	<i>Sea Rod</i>	6:47	14:48	0:31	7:30	5	4	Spotted dolphins	Full day. Corcovado tour and whale survey.
1/31/2009	<i>Sea Rod</i>	7:13	10:31	0:0	3:18	1	0	Spotted dolphins	Quarter day. False killer whale necropsy.
2/1/2009	<i>Sea Rod</i>	7:07	15:45	0:56	7:42	5	0	Spotted dolphins	Full day. Offshore survey towards Quepos
2/1/2009	<i>Paraiso IV</i>	7:16	12:53	0:20	5:07	0	0	Olive ridley turtle	Half day. Survey of Isla Cano
					62:51	32	13		

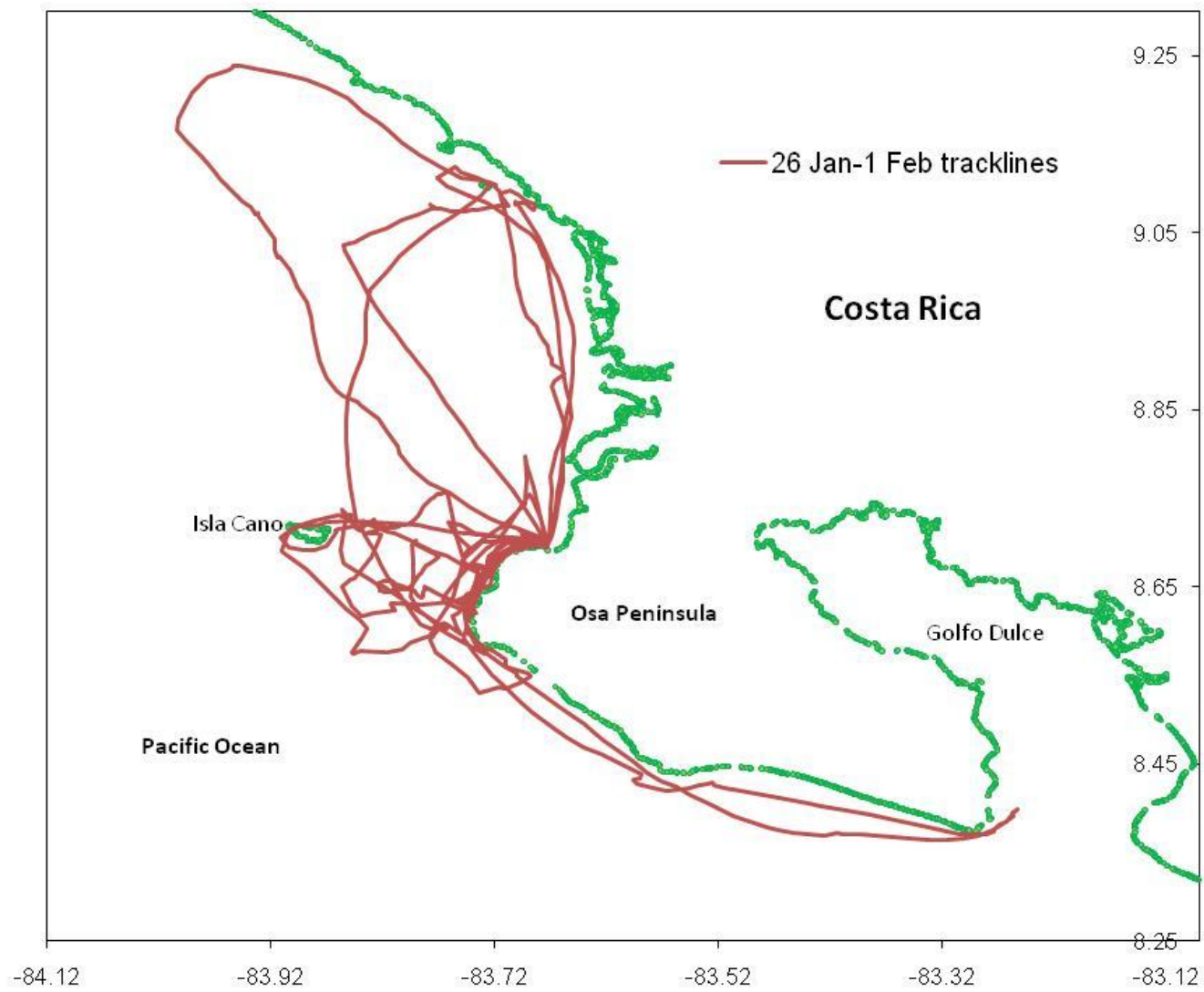


Figure 1. Vessel trackline for survey effort 26 January -1 February 2009. All surveys departed and returned to Drakes Bay, Costa Rica.

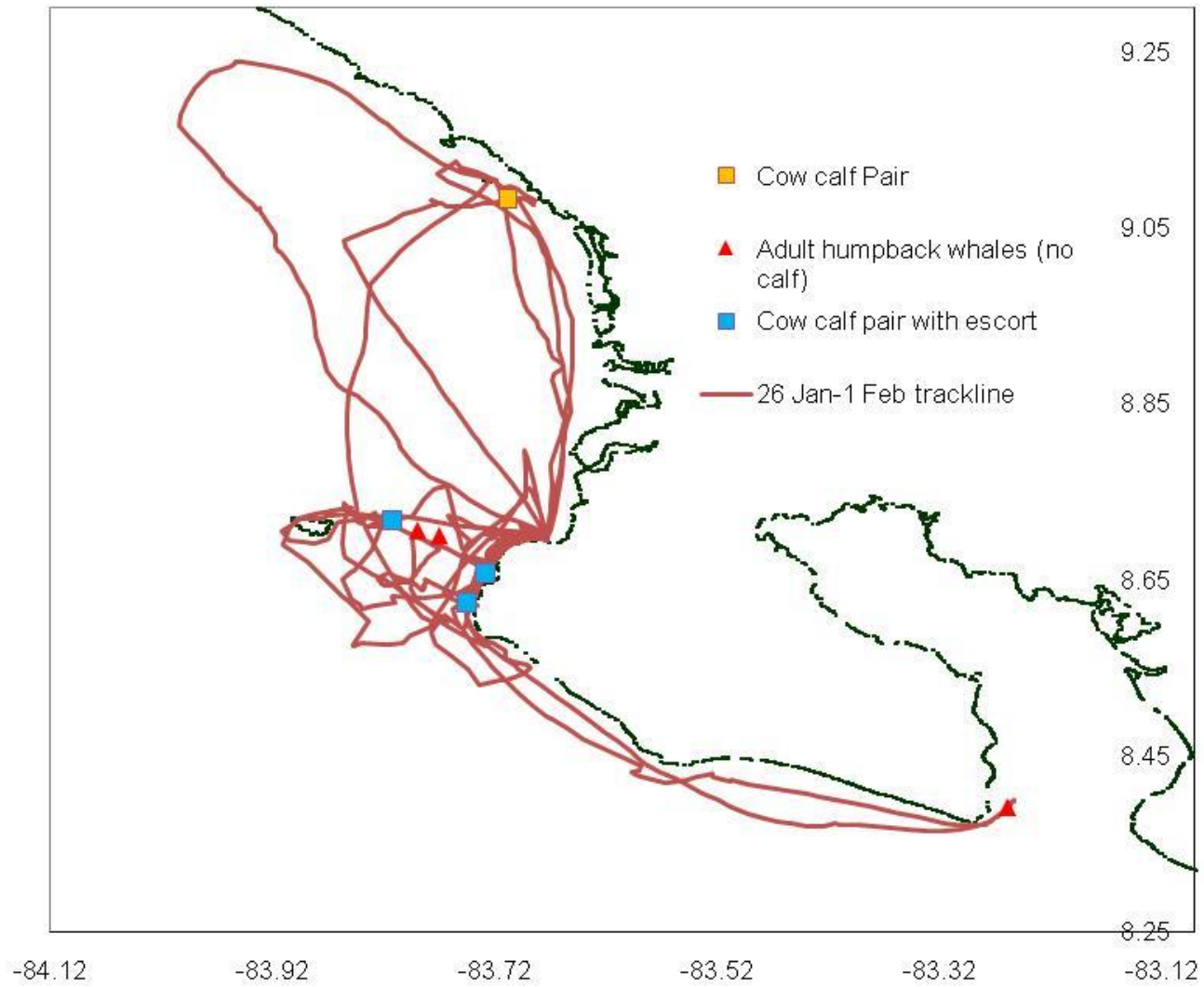
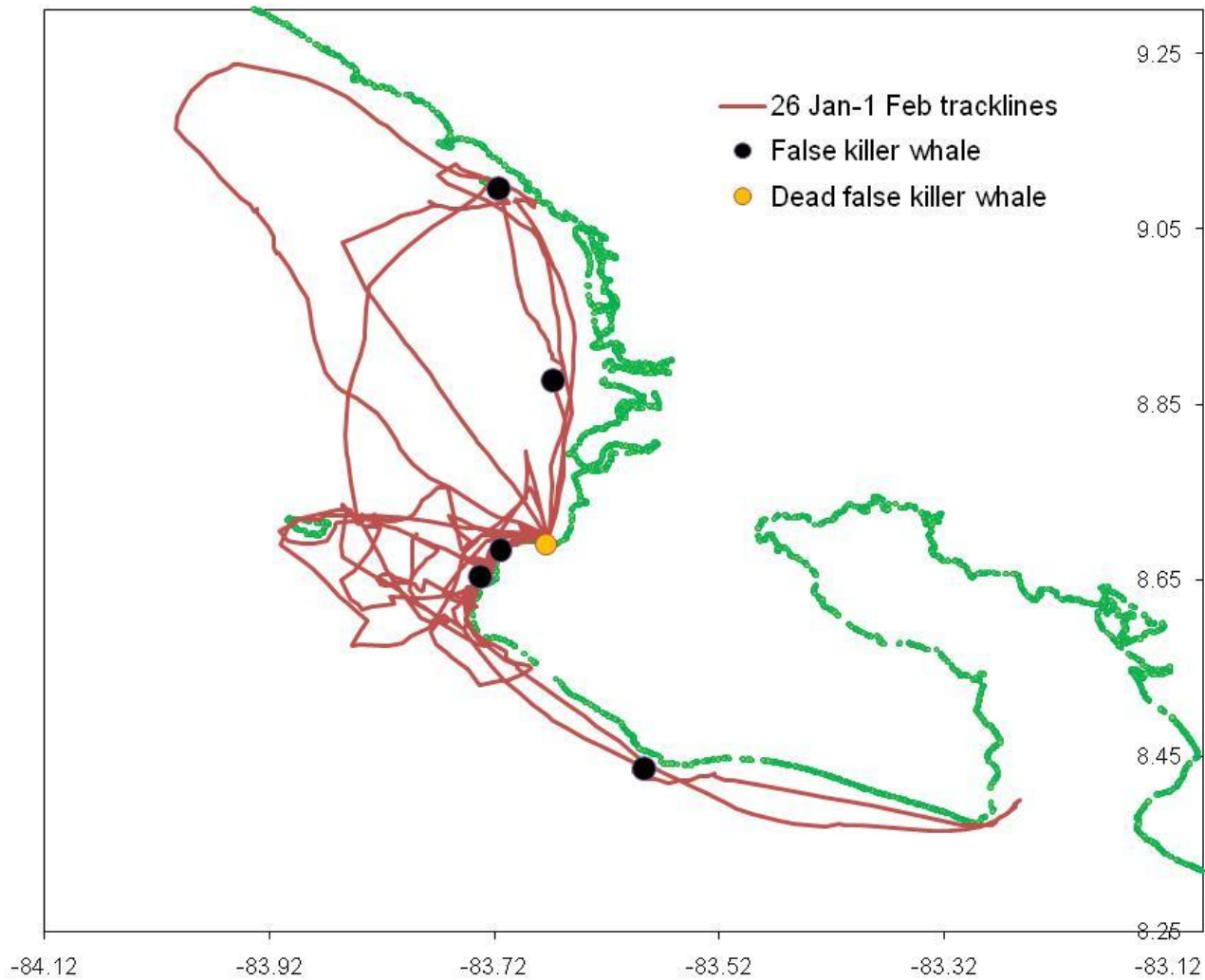
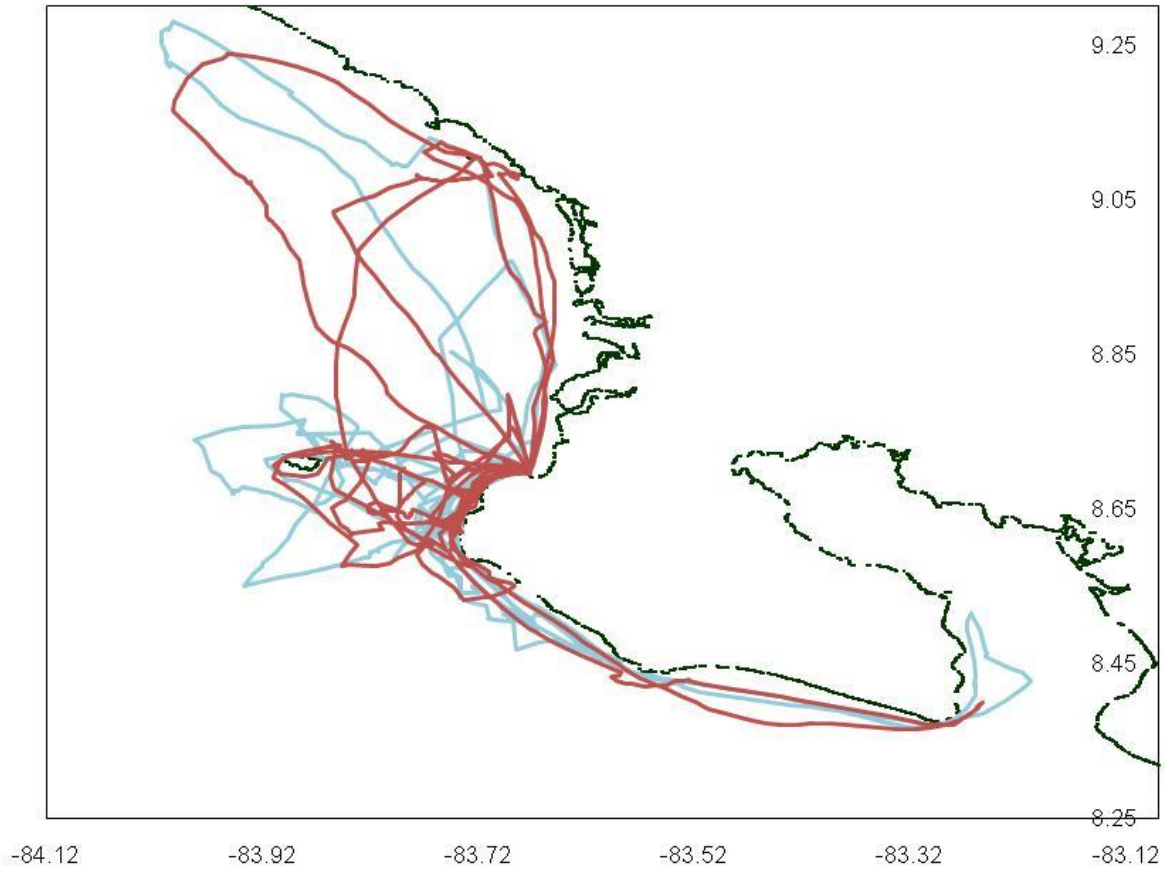


Figure 2. Vessel tracklines and humpback whale encounters.



**Figure 3. Vessel tracklines and false killer whale encounters and site of stranding**

Part II  
 Figures 4 to figure 6. Summary of two weeks survey (19 January – 1 February) departing and returning to Drakes Bay, Costa Rica 2009



**Figure 4. Vessel tracklines for 19 January -1 February 2009**

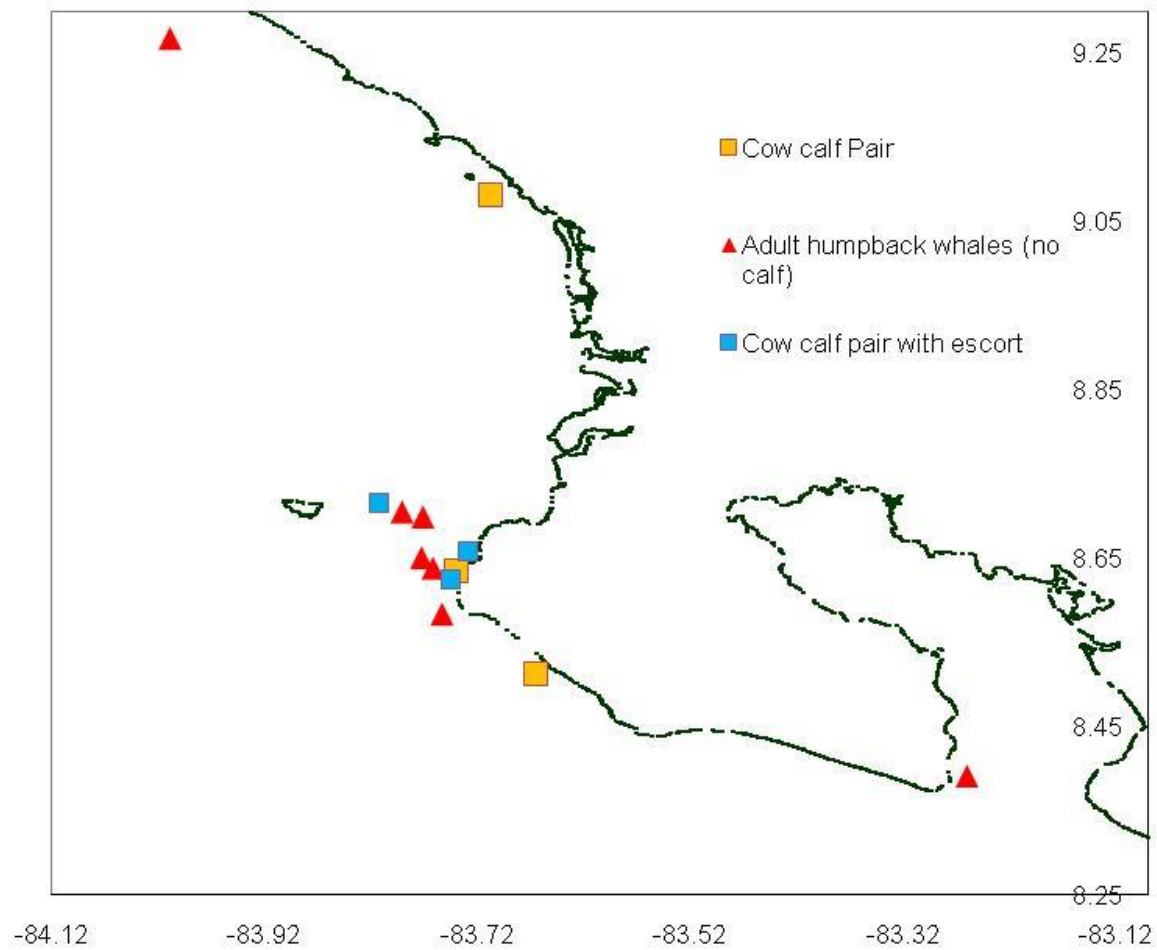


Figure 5. Humpback whale encounters for survey effort 19 January -1 February 2009, Osa Peninsula, Costa Rica

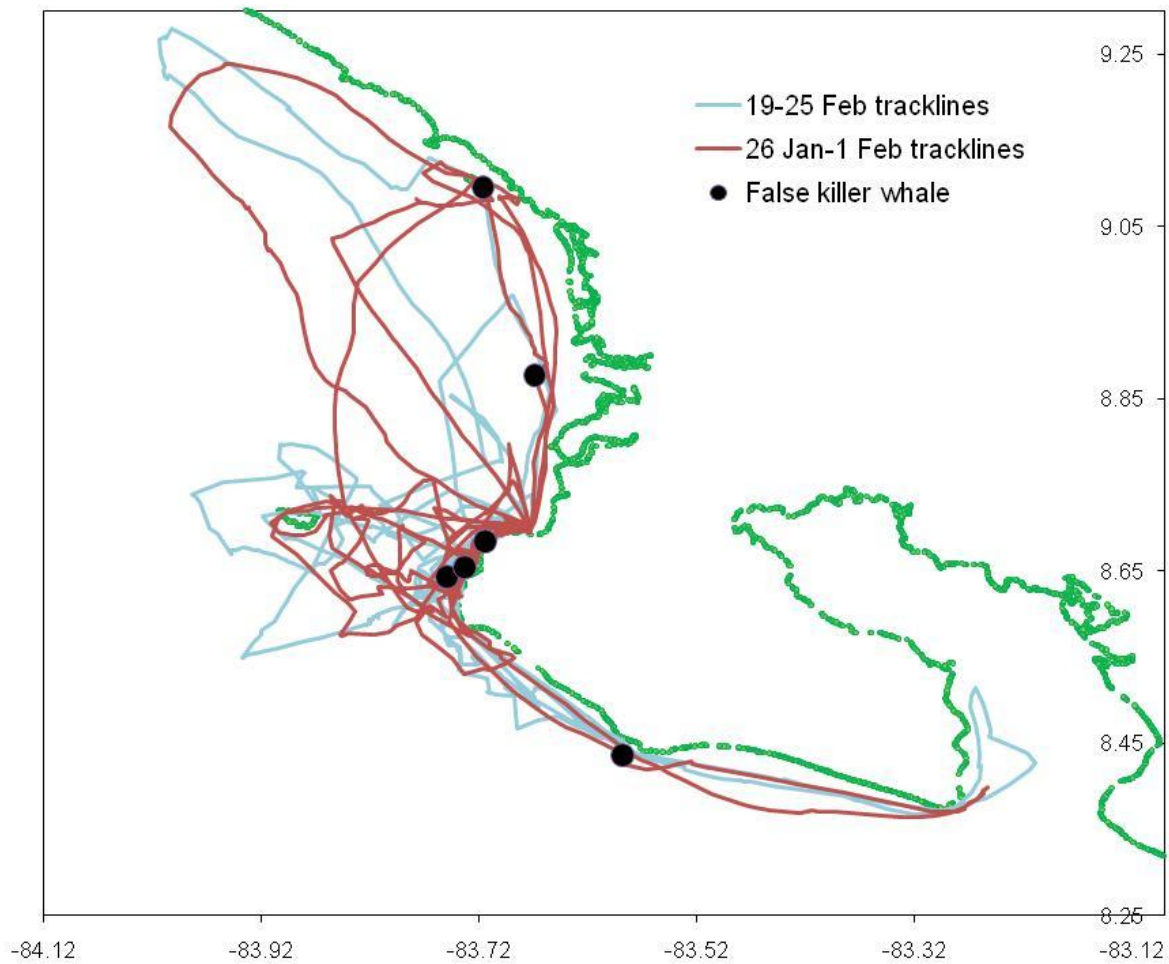


Figure 6. Vessel tracklines for 19 January -1 February with positions of false killer whale encounters.

## REFERENCES

Rasmussen, K., Calambokidis, J., and G.H. Steiger. 2004. Humpback whales and other marine mammals off Costa Rica and surrounding waters, 1996-2003. Report of the Oceanic Society 2003 field season in cooperation with elderhostel volunteers. (available as a pdf on the Cascadia website <http://www.cascadiaresearch.org/reports/REP-OSE-03.pdf>)

Reeves, R.R., S. Leatherwood and R.W. Baird. 2009. **Evidence of a possible decline since 1989 in false killer whales (*Pseudorca crassidens*) around the main Hawaiian Islands.** Pacific Science 63: in press.