

Killer whale (*Orcinus orca*) occurrence in Venezuelan waters, 2001-2008

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ABSTRACT

Reported occurrences of the killer whale (*Orcinus orca*) off Venezuela are scarce. Twelve records were collected from February 2001 through January 2008. Sightings ($n=12$) were recorded off central and northeastern Venezuela. Bottom depth for the sightings was 10-1500 m (mean= $519 \pm SD=470$; $n=12$). Four records had available associated still photographs or video. Noteworthy was a videotaped attack by two killer whales on a leatherback turtle (*Dermochelys coriacea*). Group size ranged from 1-5 individuals (mean= $3 \pm SD=1.76$; $n=12$). Adult males were present in 92% of reported sightings. Females and juveniles were observed during 67% of reported sightings. Interestingly, all of the records were from December through May. There is currently not enough information to speculate on any seasonality to the occurrence of this species in Venezuelan waters.

INTRODUCTION

The assessment of the status of the small cetaceans of the Caribbean Sea was set as a priority by the IWC during its 57th Annual Meeting held in Ulsan, Korea during 2005 (IWC 2006) and was accomplished at the 58th meeting held in St. Kitts and Nevis (IWC 2007). Additionally, the global status of killer whales was assessed by the IWC during its 59th Annual Meeting held in Anchorage, Alaska during 2007 (IWC 2008). The latter assessment concluded that “*very little information on any aspect of killer whale biology in many areas hinders any assessment of their status*” (IWC 2008).

There is little available information on the killer whale (*Orcinus orca*) in tropical waters, including the Caribbean Sea (e.g., Caldwell and Caldwell 1969; Katona et al. 1988; Dunn et al. 2007). Systematic cetacean surveys in central and northeastern Venezuela have not yielded sightings of the species (Naveira-Cortizas 1996, Bolanos-Jiménez et al. 1998, 2007, González-Fernández 2000, Oviedo and Silva 2005, Oviedo et al. 2005, Molero 2005, Herrera-Trujillo 2007, Silva-Hernández 2007, Cobarrubia and Bolaños-Jiménez 2008). Recently, Acevedo-Galindo (2007) presented the potential distribution of seven cetacean species in Venezuelan waters, made on the basis of contrasting topographic profiles vs depth of sightings recorded prior to 2006, but did not include killer whales in her review because of small sample size ($n < 10$). We compiled opportunistically recorded sightings of killer whales, which are discussed here.

MATERIALS AND METHODS

A request for information (in particular, sightings accompanied by photographs or video footage) was sent during early 2007 to an environmental internet discussion list and colleagues working on marine mammals in Venezuela. Records not accompanied by photo-documentation were accepted if: 1) confirmed by a marine biologist aboard the vessel, or 2) provided by an observer or source who demonstrated familiarity with diagnostic characteristics of the species, including specific mentions regarding sexual dimorphism as indicated by shape and relative size of the dorsal fin. Whenever possible, efforts were made to interview the original observers.

RESULTS AND DISCUSSION.

Twelve records were collected, reflecting a time period of February 2001 through January 2008 (Table 1). Four of these were accompanied by still photographs or video. Members of sport fishing clubs who fish year-round accounted for 83% ($n=10$) of the reports. Sightings were recorded off central and northeastern Venezuela ($n=9$ and 3, respectively) (Fig 1). Bottom depth for the occurrences was 10-1500 m (mean= $519 \pm SD= 470$; $n=12$). Four sightings were recorded in the same general area during two consecutive days of two consecutive weekends; observers remarked that they might be of the same group, but this cannot be confirmed due to lack of photo-documentation. This group was reported to consist of five individuals, determined to be three adult males and two females/juveniles on the basis of size and shape of the dorsal fin and body length (Mazquiarán, pers. comm. 2007; Universidad Católica Andrés Bello, UCAB, see Table 1).

Group size ranged from 1-5 individuals (mean=3±SD= 1.76; n=12). Adult males were present in 92% of reported sightings, females/juveniles were present in 67% (n=11 and 8, respectively). At least one photographed adult male had notches in its dorsal fin that could be used for photo-identification/matching purposes.

A noteworthy incident was a videotaped attack by two killer whales on a leatherback turtle (*Dermodochelys coriacea*) off northeastern Venezuela on 15 April 2007 (footage available online at: <http://www.youtube.com/watch?v=qezONiWcFjU>). The individuals were determined as an adult female and a juvenile of undetermined sex. The encounter ended when the adult female grabbed the sea turtle with her teeth and dove to a depth of greater than 100 m (Raymarine Echosounder E-120, M. Alcará, pers. comm. 2007, Anzoátegui Sport Fishing Club). A detailed description of this event is being prepared by Oviedo *et al.* (L. Oviedo, pers. comm., Biotrópica).

Interestingly, all of the records were from December through May. Fishermen in this region have remarked on the coincidental occurrence of killer whales here with cold water incursions, further observing that “tunas” and whale sharks (*Rhincodon typus*) move into the area during November through January, when some killer whale sightings have also been recorded (Mazquiarán, pers. comm. 2007). Sightings during April would coincide with the occurrence of “billfish” in the area (Mazquiarán, pers. comm. 2007). Links between tuna and billfish peak occurrence and killer whale sightings have been suggested for other Atlantic areas (e.g., western North Atlantic, including Straits of Florida: Katona *et al.* 1988; Bahamas: Dunn *et al.* 2007; Strait of Gibraltar: Guinet *et al.* 2007, de Stephanis *et al.* 2008). Also, as noted by Katona *et al.* (1988), since oceanic variables affect tuna prey distribution, the timing of tuna migration is somewhat variable, which in turn might affect occurrence of the killer whale in this area. There is currently not enough information to speculate on any seasonality to the occurrence of this species in Venezuelan waters. It is also not known whether these represent repeated sightings of the same individuals, travelling great distances; only solid photo-documentation and biopsy efforts would be able to address such questions. Funding support of dedicated research effort is strongly recommended to evaluate the presence of the killer whale (and other cetacean species) in offshore areas of Venezuela.

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Table 1. Killer whale (*Orcinus orca*) sightings off Venezuela, 2001-2008.

Date	Location	Coordinates			Sex			Remarks	Observer/source
		Lat	Long	Depth	N	Male	Female/juv		
2001-02-19	Sebastopol, Los Roques National Park	11,77	-66,38	900	1	1	--	Confirmed by Park Ranger	Toribio Mata
??-01-2004	Between Cumana and Araya Peninsula	10,43	-64,85	10	1	1	--	Videotaped by tourist	Francisco Garcia
2005-12-28	4 mn off Tacoa	10,68	-67,08	240	3	1	2	Were tracked down 10 nm westward	C. Mazquiarán
2006-01-01	Between Oricao and Chichiriviche	10,62	-67,23	680	1	1	--	Lone adult male	C. Mazquiarán
2007-01-23	Between Cayo Sur and Tucacas	10,73	-68,27	20	1	1	--	Marine biologist identified it	Mikko Pihala
2007-04-14	Central Venezuela, Vargas State	10,73	-67,12	288	5	3	2	Recorded by other fishermen *	C. Mazquiarán
2007-04-15	Central Venezuela, Vargas State	10,73	-67,12	288	5	3	2	Recorded by other fishermen *	C. Mazquiarán
2007-04-21	10 mn north of Borracha Island	10,48	-64,73	1200	2	--	2	Harassing a leatherback turtle	Miguel Alcará
2007-04-22	Central Venezuela, Vargas State	10,75	-67,13	240	5	3	2	Probably the same group	C. Mazquiarán
2007-05-05	Central Venezuela, Vargas State	10,72	-67,08	268	5	3	2	Probably the same group	C. Mazquiarán
2007-01-15	10 mn northwestern of Borracha Island	10,41	-64,85	600	3	1	2		David Alemañy
2008-01-15	42 mn north of La Guaira to Los Roques	11,3	-67,80	1500	4	1	3		C. Mazquiarán

* These sightings were reported to Mr. C. Mazquiarán by other sport fishermen in the area.

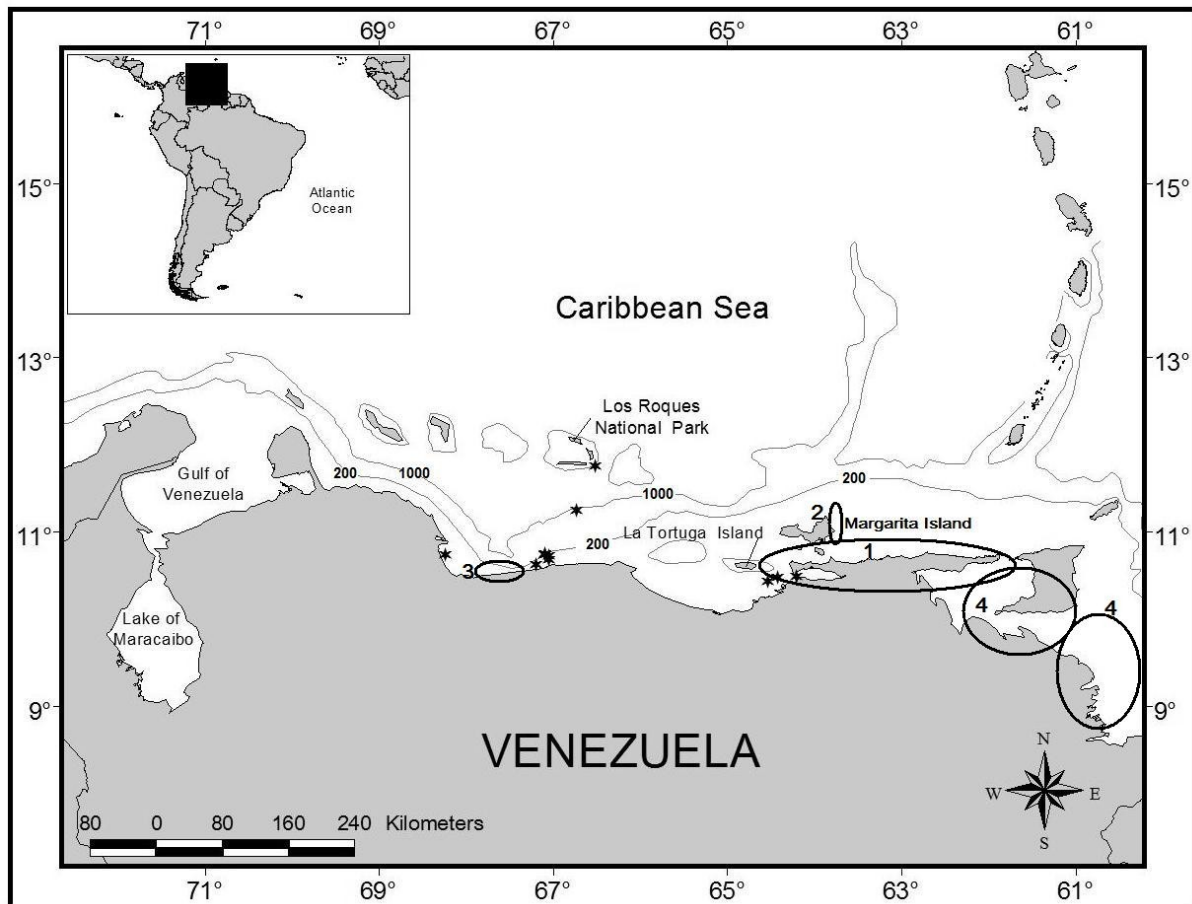


Figure 1. Distribution of killer whale (*Orcinus orca*) sightings off Venezuela, 2001-2008. Symbols may represent more than one sighting. Dark ovals indicate areas surveyed by Venezuelan researchers (1: Naveira-Cortizas 1996, Molero 2005, Guada et al. 2006; 2: Oviedo and Silva 2005, Oviedo et al. 2005; 3: Bolaños-Jiménez et al. 1998, 2007, González-Fernández 2000, Silva-Hernández 2007, Herrera-Trujillo 2007, Cobarrubia and Bolaños-Jiménez 2008; 4: Guada et al. 2006, Bolaños-Jiménez and Velásquez 2007).