

*Short Communication*

## First record of loggerhead sea turtles *Caretta caretta* in Sebastián Vizcaíno Bay, Baja California Peninsula, Mexico

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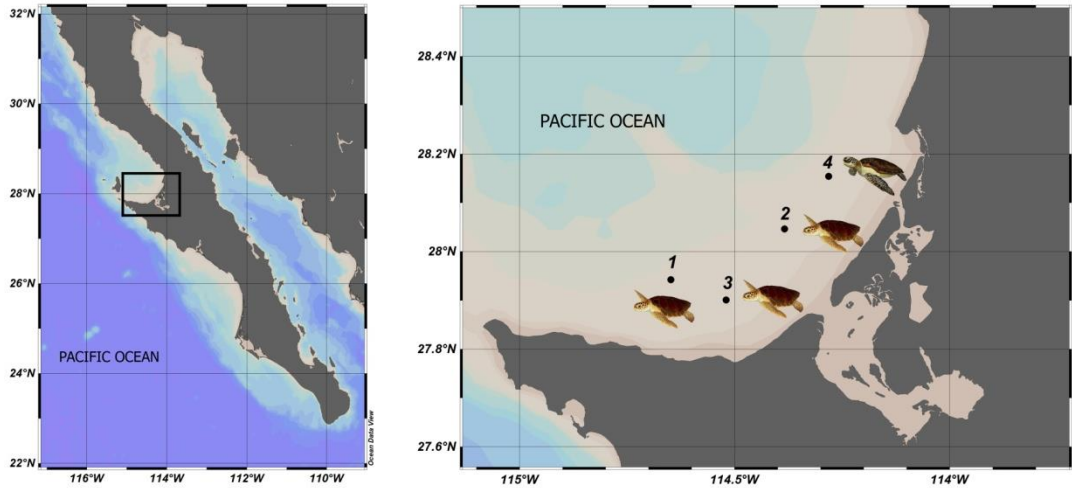
**ABSTRACT.** The loggerhead sea turtle (*Caretta caretta*) is an endangered species which distributes around the west coast of the Baja California Peninsula. In Baja California Sur, the conservation efforts for this species were focused in the Gulf of Ulloa; however, within the Pacific coast of the Baja California Peninsula, Sebastián Vizcaíno Bay (SVB) biological active center suit the optimal conditions for the presence of loggerheads. This study aimed to investigate SVB as a potential foraging area for loggerheads. Between July and August 2018, three prospective surveys were conducted, in search of marine turtles in SVB. A total of three loggerhead turtles and one eastern Pacific green turtle (*Chelonia mydas*) were captured; biometric data were recorded, and organisms were classified as juveniles. This is the first report of the loggerhead sea turtles in the SVB and given the oceanographic characteristics of the bay, it is a potential foraging and development area for the species.

**Keywords:** *Caretta caretta*; distribution; foraging area; biological active center; Guerrero Negro; Pacific coast

The loggerhead sea turtle (*Caretta caretta*) is a threatened species, which distributes throughout the tropical-subtropical regions of the Pacific, Atlantic, Indian Ocean and the Mediterranean Sea (Bowen *et al.*, 1994). These highly migratory species travel between the same foraging and nesting areas throughout its lifetime; in the Pacific Ocean, they migrate from Japan and Australia nesting beaches across the ocean to the eastern Pacific where they spend several years foraging and maturing (Peckham *et al.*, 2011). The central north Pacific, as well as the west coast of the Baja California Peninsula, represents important foraging sites for the loggerhead turtle populations, mainly in upwelling areas of high productivity (Polovina *et al.*, 2006; Abecassis *et al.*, 2013; Seminoff *et al.*, 2014).

In Baja California Sur, all the conservation efforts for loggerheads have been focused in the Gulf of Ulloa

(established as the main foraging hotspot for loggerhead sea turtles (Seminoff *et al.*, 2014)) due to the high mortality associated with bycatch (Peckham *et al.*, 2011). However, on the Pacific coast of the Baja California Peninsula, there is another area of high biological activity, Sebastián Vizcaíno Bay (SVB; Lluch-Belda, 2000). This bay consists of an extensive platform of igneous rock over the Pacific Plate located within the region of the California Current (Tsuchiya, 1982), where predominant northwest winds and the convergence of three major water masses (Central Pacific Water Mass, Eastern Tropical Pacific Water Mass, and Subarctic Water Mass) produce one of the main coastal upwelling regions (Bakun & Nelson, 1977). The annual mean temperature is 18 to 20°C, and rainfall is scarce with no freshwater sources (Wyllie, 1961). These characteristics lead to high rates of prima-



**Figure 1.** Location of the captured marine turtles *Caretta caretta* (1,2,3) and *Chelonia mydas* (4).



**Figure 2.** Juvenile loggerhead sea turtles (*Caretta caretta*) captured in Sebastián Vizcaíno Bay.

ry production (Hernández-Rivas *et al.*, 2000), suggesting that the region could have optimal conditions for loggerhead sea turtles. The present study aimed to investigate the potential of SVB as a foraging area for loggerhead sea turtles.

The study was conducted around 28°23'–27°48'N and 115°00'–114°12'W, SVB. Between July and August 2018, three prospective surveys were conducted in search of marine turtles on the Pacific coast of Guerrero Negro, SVB. The turtles were captured by hand modifying the rodeo-jumping technique proposed by Limpus (1978). Once on the boat, the curved carapace length (CCL) and weight were registered following Bolten's (1999) methodology; sex of the turtles was determined according to tail length sexual dimorphism described by Wyneken (2001). Organisms were tagged in the frontal flippers following Balazs's (1999) methodology using Monel tags. Finally, an individual photo-documented report for each of the turtles was prepared for their identification and further

monitoring; immediately after, they were released. This research was conducted under the permit: OFICIO No. SGPA/DGVS/013214/18. A total of three loggerhead sea turtles and one eastern Pacific green turtle (EPGT; *Chelonia mydas*) were captured (Figs. 1-2); loggerheads under 91 cm (CCL) were considered juveniles according to the average size of Japanese nesters (Kamezaki *et al.*, 1995, Hatase *et al.*, 2004) and EPGTs under 77 cm (CCL) were considered juveniles according to Márquez (1990), as shown in Table 1.

The SVB host a large number of species both marine vertebrates and invertebrates, and has been selected as a Priority Marine Area by the Mexican Government because of its high biodiversity (Lluch-Belda, 2000); due to its oceanographic characteristics, it provides the optimal conditions as a marine turtle foraging site. Our surveys have been the first monitoring in the area, so basic features of the turtles are yet unknown, such as their reproductive dynamics, their use of habitat, distribution and movements, resting areas and health

**Table 1.** Curved carapace length (CCL), weight, sex and coordinates of the captured turtles *Caretta caretta* and *Chelonia mydas* in the Sebastián Vizcaíno Bay. SD: standard deviation; U: Undefined.

ID	Species	Date	CCL (cm)	Weight (kg)	Sex	Coordinates
1	<i>C. caretta</i>	11/07/2018	38.6	12	U	27°56'32.0"N, 114°38'53.7"W
2	<i>C. caretta</i>	11/07/2018	45.1	18	U	28°02'46.9"N, 114°23'02.8"W
3	<i>C. caretta</i>	14/08/2018	82.6	52	U	27°54'03.6"N, 114°31'12.2"W
		Mean ± SD	55.43 ± 23.75	27.33 ± 21.57		
4	<i>C. mydas</i>	22/08/2018	62.0	30	U	28°09'14.3"N, 114°16'53.4"W

conditions, among others. The generated information about behavior, foraging and resting areas in the Baja California Peninsula is still limited (Peckham *et al.*, 2007), although it has been observed that turtles show high fidelity to their Baja California Sur sites (Seminoff *et al.*, 2002; Koch *et al.*, 2007; Reséndiz *et al.*, 2018).

Ojo de Liebre lagoon complex, “El Vizcaíno” Biosphere Reserve, is located on the coast of the SVB region and constitutes the main EPGT foraging area of the Baja California Peninsula (Reséndiz *et al.*, 2018). Within the lagoons, juvenile marine turtles develop until maturity, when they migrate to breeding and nesting areas (in the case of females), and finally return to the lagoons (Reséndiz *et al.*, 2019); thus, SVB is likely an important transit area for EPGTs.

Isla de Cedros, located northwest of Punta Eugenia, works as a constriction barrier; the bay is an excellent refuge for different species of marine turtles. In addition, the area is a great feeding source for organisms (Hernández-Rivas *et al.*, 2000) being a potential foraging and development area for loggerhead sea turtles, since crayfish (*Pleuroncodes planipes*), abundant in the bay, has been reported as their main diet prey (Peckham *et al.*, 2008). Our findings indicate that loggerhead sea turtles distribute within areas of the Baja California Peninsula other than the Gulf of Ulloa, highlighting the importance of including these new areas in future conservation and monitoring programs.

“El Vizcaíno” Biosphere Reserve, along with the Empresa Exportadora de Sal S.A., the project Health Assessments in Sea Turtles from B.C.S. and Universidad Autónoma de Baja California Sur, are concentrating efforts to carry out marine turtle conservation monitoring in SVB, intended to generate basic research and information of EPGTs and loggerhead sea turtles that distribute within the bay. This information will allow the generation, together with the corresponding local authorities, of management plans and appropriate conservation strategies to benefit the organisms and ecosystems in the SVB.

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