

Notes on the live stranding of a rough-toothed dolphin (*Steno bredanensis*) on the coast of Yucatan, Mexico

In March 1999, we were made aware of the presence of a live stranding. A male rough-toothed dolphin (*Steno bredanensis*) was found on the northwest part of the Yucatan Peninsula near the town of Celestún. The original information given to us by telephone was of "a big dolphin around 200 kg weight of dark color", misidentified as *Stenella* species.

The first attempt at feeding was with canned tuna fish. Veterinarian staff from Xcaret Park changed the feeding to small whole fish and recommended beginning a re-hydration process.

With the scarce information given, we traveled to the stranding site in order to corroborate the data and begin the rehabilitation process. This record is important because it is the first live stranding of *Steno bredanensis* on the southeast coast of the Gulf of Mexico.

We arrived on March 20th, 1999 at the Eco-Paraiso Hotel, 10 km northeast of the town of Celestún (20° 57'00" N : 90° 22'20" W). We found a small and thin dolphin referred to as "peanut head" in the vernacular, around 60 kg without clear separation between the melon and rostrum. This confirmed the identification of the dolphin as a young male rough-toothed dolphin. Furthermore, the shape of the head as well as other characteristics were noted. Such characteristics were the dark coloration with some light patches on the sides of the body and teeth with longitudinal rugosities (Leatherwood *et al.* 1988. *Whales, dolphins and porpoises of eastern North Pacific and adjacent waters. A guide to their identification.* Dover Publications, New York, pp. 178-183; Miyazaki & Perrin 1994. *Handbook of Marine Mammals, vol. 5. The first book of dolphins.* Academic Press, New York, pp. 1-21).

The dolphin had been suspended in a stretcher and placed into a small pool (2 m in diameter) with fresh water. After we arrived, the dolphin was moved into a bigger pool (10 X 4 X 1.5 m) that was refilled with seawater pumped directly from the Gulf of Mexico. The care of the stranded dolphin was the direct responsibility of the Yucatan Stranding Network (Red de Varamientos de Yucatán REVAY) and Mexican Navy personnel.

Perhaps due to the prolonged time in the stretcher, the dolphin was not able to swim by itself when it was moved into the big pool and rolled onto its right side. We did not see any external wounds.

After small fishes (sardines, Fam. Clupeidae and other fishes, Fam. Gerridae) were offered, the dolphin nibbled at them, then separated the heads and swallowed the bodies rapidly. After eating, the dolphin attempted to move by itself. We placed a life vest on its body to help its buoyancy.

Blood samples and routine body measurements (Table 1) were taken on March 21st. During the 35 minutes of the sampling process, the dolphin was very docile. The only blood parameter obtained *in situ* was the globular sedimentation rate (95 mm/h). This sample showed signs of pathology.

The dolphin survived for three more days after it fed for the first time. REVAY performed the dissection and cleaned the carcass. We had only a sub sample of the gut contents. During the analysis of this material, we found a fibrous tissue, but the most important finding was the identification of a marine sponge species, *Aplysina cauliformis* (Carter 1882). This sponge tissue plugged the fore-stomach.

Table 1. Body measurements (cm) of a male rough-toothed dolphin stranded in Celestún, Yucatán, México

Body measurements	<i>S. bredanensis</i>
Total length	196
From the tip of upper jaw to:	
Eye	33
Blowhole	37
Ear	42
Pectoral fin anterior insertion	54
Dorsal fin anterior insertion	98
Navel	94
Anus	125
Genital slit	114
Gape	32
Length pectoral fin (Max.)	34
Length pectoral fin (Min.)	25
Width pectoral fin	12
Dorsal fin height	19
Dorsal fin base	24
Fluke width	49
Head girth	73
Dorsal fin girth	79
Anus girth	48
Weight estimate	60 kg

Date: March 20th, 1999

Recorder: ADE

The sponge was easily identified because the preservation conditions of the tissue were good. Tangential and longitudinal cuts of the ectoderm from the branches and base of the sponge were observed at the microscope, to measure mesh size, fiber diameter and pith percentage. The shape, color, and size of the sponge were as reported by Wiedenmayer (1977. *Experientia Supplementum* (Basel) 28:1-287) and Zea (1987. *Esponjas del Caribe Colombiano. Catálogo científico*, 286 p.).

The general circumstances of this stranding and the poor body conditions of the dolphin (low weight and buoyancy troubles) contributed that the dolphin could not have survived. However, the most important aspect was the presence of the sponge. Acting as a plug to the stomach, it probably impeded feeding. The most harmful injury probably was the mechanical damage the animal suffered, provoking an ulcer, peritonitis and extensive hemorrhaging.

There is no available information on the ingestion of sponges by marine mammals, particularly dolphins. The dolphin possibly swallowed the sponge during play, or it could have accidentally confused the sponge as prey. Layne (1965. *Bulletin of the Florida State Museum of Biological Sciences* 9:131-181) reported the presence of sargassum algae (*Sargassum filipendula*) in some stranded marine mammals.

Smolker *et al.* (1997. *Ethology* 103:354-365) reported that some bottlenose dolphin females from Shark Bay, Australia have been observed carrying sponges on their mouths. They suggest that the sponges might be used as "tools" in order to disturb bottom sediments or as protection for the dolphin face against the spines of some fishes.

The blood analysis showed that the animal had a high number of white blood cells and a low level of glucose. These are signs of an infectious process and long fasting time (Table 2). From these blood data, we offer the following considerations:

The high counts in some parameters such as white blood cells, neutrophils, plasmatic proteins and globulin, indicate an infectious process. Moreover, the high hematocrit is evidence of dehydration due to not feeding activities. The high levels of hepatic enzymes are indicative of liver damage.

Occurrence of rough-toothed dolphins in the southeastern part of the Gulf of Mexico have been common in recent years, as well as sightings and strandings. There have been some sightings in shallow water on the coast of Tabasco during feeding activities in mixed schools with bottlenose dolphins *Tursiops truncatus* (Delgado-Estrella 1994. *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología* 65(2):303-305; Delgado-Estrella & López-Hernández 1997. *Abstracts XXII Reunión Internacional para el Estudio de los Mamíferos Marinos SOMEMMA*, Nuevo Vallarta, Nayarit, abril.). This is the second stranding record of *S. bredanensi*: between the states of Campeche and Yucatan. The first was of a massive stranding of 27 dolphins in Punta Kambalam, Campeche (Sánchez-Ríos *et al.* 1996. *Abstracts XXI Reunión Internacional, SOMEMMA*, Chetumal, Quintana Roo, 8-12 de abril). In an osteological study of that massive stranding, Romero-Tenorio (2000. Tesis ENEP-Iztacala, UNAM, 53 p.), found that most of the animals were adults and there were

Table 2. Reference blood values from *Steno bredanensis* (F. Townsend, personal communication*) and values of male rough-toothed dolphin stranded in Celestún, Yucatán

	* Reference values from other strandings	This stranding
Performance date		March 22 nd , 1999
HEMATOLOGY		
Hemoglobin (g/dL)	13-16	5.2
Hematocrit (%)	45	49
RBC 10 ⁶ /mm ³	3.5	5
MCV (fL)	123	98.0
MCH (pg)	42	31.0
MCHC (g/dL)	35	30.4
Platelets 10 ³ /mm ³	<125	—
N RBC/100 WBC	0	—
Reticulocyte (%)	4.5	—
ESR (mm/h)	<20	95
WBCx1000 (mm ³)	4.0-9.0	15 650
ABSOLUTS		
Neutrophils	1100-5000	9 540
Lymphocytes	1000-2500	4 695
Monocytes	<800	469
Eosinophils	<2500	156
Bands	<100	782
SERUM CHEMISTRY		
Glucose (mg/dL)	90-150	33
BUN (mg/dL)	<70	82.4
Creatinine (mg/dL)	<1.5	1.2
Bilirubin T (mg/dL)	<0.5	—
Cholesterol (mg/dL)	87-380	249
Triglycerides (mg/dL)	20-50	341
Total Protein (g/dL)	7.0-9.0	8.5
Albumin (g/dL)	3	3.3
Globulin (g/dL)	4	5.2
Alkaline Phos (U/L)	50-100	—
ALT (U/L)	<50	121
AST (U/L)	<200	372
Iron (mcg/dL)	>75	97

some young dolphins. Unfortunately, there are no current information about the sex composition of the herd.

According to Leatherwood and Reeves (1984. *The Sierra Handbook of Whales and Dolphins*. Sierra Club Books, San Francisco. pp. 180-183.), in this species both sexes reach sexual maturity at about 180 cm. By this information, we conclude that this particular stranded dolphin could be considered mature.

This is the first reference of body measurements and blood values for this species in the Yucatan Peninsula. This is as well the first record of a marine sponge as a possible source of mortality in a free-ranging small cetacean in Mexico.

The bony material is in possession of Red de Varamientos de Yucatán (REVAY).

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