

# **Insights into the Trophic Ecology of the Pantropical Spotted Dolphin (*Stenella attenuata*), the Dominant Dolphin Species in the Mexican Central Pacific**

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## **SUMMARY REPORT**

The spotted dolphin (*Stenella attenuata*) is the predominant cetacean species in the Central Mexican Pacific (PCM), as it is recorded during any season of the year. This characteristic confers on it the quality of sentinel of the region. However, studies on its trophic ecology are scarce; the little information available has come from analysis of stomach content of stranded or incidentally captured dolphins, and direct observations of predation events. Therefore, the aim of this project was to have a better understanding of the trophic ecology of the pantropical spotted dolphin from the PCM, which covers the states of Michoacán, Colima and Jalisco, extending from 16.5° to 21.5° N and from 102.33° to 107.69° W.), utilizing stable isotopes ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ). From 2010 to 2015 oceanic and coastal surveys were conducted to look for spotted dolphin. A total of 146 individuals were biopsied, using a Barnett 150 lbs crossbow with modified arrow tips, to take a small skin and fat sample. Additionally, 34 muscle samples of potential spotted dolphin prey were obtained. The isotopic ratio of the spotted dolphin averaged a value of  $-15.84 \pm 1.0$  ‰ for  $\delta^{13}\text{C}$  and  $15.96 \pm 0.73$  ‰ for  $\delta^{15}\text{N}$ . The isotopic niche during rainy seasons (November-May) tended towards more positive carbon values, and slightly higher nitrogen values, compared to dry ones (June-October), which could be related to terrigenous sources during the rainy season. But also, to a change in food habits since this species has been reported to consume mainly squid during summer (rainy conditions) and mainly epipelagic fish during winter (dry conditions). Small differences in isotopic signals between females and males were detected, probably related to reproductive stages, such as gestation and lactation periods. The isotopic values of the possible prey were grouped obtaining an average value of  $17.11 \pm 0.78$  ‰ for  $\delta^{13}\text{C}$  and  $16.13 \pm 1.11$  ‰ for  $\delta^{15}\text{N}$ . Relationships between stable isotopes of C and N of spotted dolphins and their potential prey species is under analysis (Mixing Models). The grant from SMM was used to pay for the isotopic analyses of 180 samples; each sample had a cost of \$10 USD. The remaining grant money was used to cover shipping cost to send the samples from the University of Colima to CICIMAR and finally to the University of New

Mexico This research is part of a doctoral dissertation of a student that I am currently supervising, and we expect that it will be concluded in July 2021. Preliminary findings were presented in May 2018 at the conference of the Mexican Society for Marine Mammalogy in Tabasco, Mexico. We also expect to submit manuscript for publication during 2019.