

## **Foraging ecology of a population of bottlenose dolphins (*Tursiops truncatus*) in Bocas del Toro Archipelago, Panama.**

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### **Final Report**

The Bocas del Toro Archipelago is located in the northwestern Caribbean coast of Panama, and holds a year-round population (~75) of bottlenose dolphins (*Tursiops truncatus*), which is target of an uncontrolled dolphin-watching industry. The area is characterized by its habitat heterogeneity and high productivity values, since within de Archipelago there are mangroves, sea grass beds, and coral reef habitats. The diversified range of ecosystems may provide several coastal resources to dolphins. Recent studies about genetic status of this bottlenose dolphin population have shown low genetic diversity and high genetic structure, suggesting high philopatry and limited genetic flow with neighbor populations in the Caribbean. Hence, this population should be managed as a population at risk and conceivable management plans should be established. Ecological information about the role of this species in the Archipelago could provide valuable scientific data, with relevant implications for conservation and adequate management plans. Therefore the aim of this project is to characterize the foraging ecology within individuals of the population of bottlenose dolphins (*T. truncatus*), by analyzing  $\delta^{13}\text{C}$  (reflecting foraging habitats), and  $\delta^{15}\text{N}$  stable isotopes (reflecting trophic level).

We processed 25 skin samples collected from wild dolphins using a modified rifle (the PAXARMS system) in Bocas del Toro. These samples were analyzed using an isotopic mass spectrometer. The results showed that  $\delta^{15}\text{N}$  values ranged between 5.76 and 12.77 ‰ (mean= 10.04, SD=1.86). These low  $\delta^{15}\text{N}$  values in dolphins suggest that they feed on preys in a low trophic level, such as sardines. Although boat traffic has affected distribution and habitat use of bottlenose dolphins in the Archipelago, dolphins do not appear to move away from this area, and this could be explain in in part to the reliable presence of sardines, which are very common in Bocas del Toro.

Results of  $\delta^{13}\text{C}$  values ranged between -9.69 and -16.40 ‰ (mean= -12.69, SD=1.87), which indicated that these dolphins feed on coastal prey. These findings provide ecological evidence that support the population of bottlenose dolphins in Bocas del Toro is formed by the “inshore form”. This isolation could affect the conservation status of dolphins in the Archipelago, and therefore it’s essential to implement a management plan to conserve this population to the long-term.

We are very thankful for the support of the Society for Marine Mammalogy for funding part of this research. Our findings will be presented as a poster during the 22nd Biennial Society for Marine Mammalogy Conference on the Biology of Marine Mammals in Halifax.