

Angelshark-ID: Photo-identification as a non-invasive monitoring tool

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Angelshark-ID is a research action created for long-term monitoring of angelsharks *Squatina squatina* in the Canary Islands, employing photo-identification. The aim of the project is to generate scientific base knowledge that allows the development of effective species management, while minimizing research impacts to the studied populations. In addition, this initiative responds to the need of creating a baseline for assessment and monitoring of the populations *S. squatina* in the Canarian Archipelago.

For data collection, visual underwater census were conducted in coastal areas from four of the seven Islands since 2006. The use of body marks is evaluated for use in individual identification of specimen and the recorded ecologic data to get insights in different life history aspects of the species. Parameters of interest include activities, population structure, growth and longevity, critical habitats, and population size. In addition, a tissue sample data bank was established for future genetic (ongoing) and isotopic analysis. During the 2016 sampling campaigns in the island of Gran Canaria, it was possible to characterize the individuals in more than 93% of the 173 encounters with angelsharks, resulting in the identification of 157 individuals. Resightings (11%) included individuals that were first observed during 2016 (8%) and two individuals that were first observed in 2007.

The high percentage of characterized individuals and the possibility to detect short, median and long-term resightments indicate that the innovative way of implementing photo-identification for *S. squatina* is a viable method for its monitoring. In addition, it is a technique that causes minimum perturbation to the species while it can provide essential information required for its population assessment and is therefore a potential conservation tool.

Keywords: angelote; squatina; individual identification; genetic assessment; population structure; Canary Islands