

## **Pilot Program On The Study Of Reef Sharks And Rays In Moheli Comoros(Bamba Project)**

**Authors :** Sarah Martinez and Halifa Zouboudou

**E-mail Address:** hzouboudou@yahoo.fr

**ID:** 11927

### **Submission:**

#### **Background**

Shark populations, an integral part of marine ecosystems, are now seriously threatened, globally, due to habitat loss and overfishing.

The Association for the Socio-Economic Development of Itsamia (ADSEI) and the Moheli National Park (PNM) ensure the conservation of many species such as sea turtles and corals. However, to date, no scientific study has been conducted on its relevance to key species of coral ecosystems such as reef sharks and rays. In view of their ecological importance within the reefs, a scientific study aimed at characterizing the biodiversity in elasmobranchs and estimating the abundance and size structure of the shark populations of the PNM would allow, on the one hand, improve knowledge of these marine predators. and on the other hand a strengthening of measures to protect species associated with the marine ecosystems of Moheli.

The main objective of this project is to improve knowledge and conservation of shark and ray species in the mangroves and coral reefs of Moheli by collecting the first scientific data on the populations of reef sharks and rays in the National Parc of Moheli.

#### **Method**

Tagging of juvenile sharks observed in the Bagacharini Nioumachoi mangrove. And on the other three sites is aimed at tagging adult sharks and rays. Using bait, sharks and rays will be caught, identified, measured (LF; SPAN and LT, respectively) and sexes. The tags placed will be adapted to the sizes of the individuals as well as to the species captured. Indeed, for tagging individuals over 50 cm, plastic-tipped fish tags will be used. Sharks over 140cm will be tagged with stainless steel tipped tags. Rays will be tagged with round-ended tags. A specific applicator for each tag will be used for marking operations. Two tags will be placed on each individual in order to maximize the collection of recapture data. Samples will be taken from the sharks and will be used for genetic, isotopic and physiological analyses. Baited Underwater Stereo-Video Stations (BRUVS) will be installed and the structure of the BRUVS will consist of five video cameras and a pedestal. On each of the three reef study areas, 30 BRUVS will be deployed between 10 and 40 meters deep. Analysis of the data obtained will be carried out as well as the description of the coral reef habitats using the photographic method and by means of software specific to the BRUVS. The study will be carried out on the fringing reefs at the level of the islet Mchaco-Itsamia , the islets of Nioumachoi and between Fomboni and Hoani as well as on the Bagacharini Nioumachoi mangrove. For each site, four line transects will be carried

out randomly (20 × 1 meter). The distances between these transects will be at least 10 meters. Statistical modeling of the influence of habitat variables on the abundance and size structure of reef sharks and rays of Moheli will be carried out using R software (R Core Team, 2016).

### **Results**

6,000 adult sharks, 1,000 juveniles and 3,000 rays will be tagged and monitored at the four intervention sites of the program. The characteristics (species, sex, size, state of health) of each individual will thus be obtained. Inter-annual site fidelity will be known for individual tagged sharks and rays. The rate of recruitment of new individuals to the sites will also be assessed. Individuals moving to other sites will be identified. The diversity, abundance and structure of elasmobranch communities will be assessed. All the information collected will make it possible to make a first estimate of the abundance and structure of the populations of reef sharks and rays of Moheli . This pilot program will make it possible to establish an inventory of the species diversity and structure of these species communities.

### **Conclusion**

The data collected, once processed, will make it possible to establish a census of the populations of reef sharks and rays in Moheli. Habitat analyzes will improve understanding of the factors that influence the distribution of these species. They will also make it possible to carry out an assessment of the marine ecosystems of Mohéli and thus to carry out the description of the habitats of reproduction, nursery and feeding of sharks. These operations could serve as a basis for longer-term monitoring of the various sites sampled.