Elasmobranchs survey in the Mascarene Archipelago (La Réunion, Mauritius, Rodrigues): creation of an observatory to improve scientific knowledge

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Abstract

Several species of rays and sharks evolve in the waters of the Mascarene archipelago (La Réunion, Mauritius, Rodrigues) but they remain little known. To compensate this lack of knowledge, the Mascarene Archipelago Elasmobranch Observatory (MAEO) has been created in 2021 to collect data on elasmobranch biodiversity and distribution. It combines non-invasive sampling methods (360° cameras and UVCs) and a sighting network. A total of 412 sightings of 994 individuals including 18 species of elasmobranchs were recorded from large time scale sightings (2012-2022).

Introduction

Along with Madagascar, Comoros and Seychelles, the Mascarene archipelago is one of the main biodiversity hotspot of the Western Indian Ocean (Myers et al. 2000). As a result its biodiversity is very important but threatened by anthropogenic activities (Mauremootoo et al. 2003; Letourneur et al. 2004). 59 species of rays and sharks have been identified in the archipelago: 15 rays and 44 sharks, among which more than 60% are threatened with extinction. The lack of knowledge of these populations makes conservation measures difficult to establish.

Sighting network

An online platform has been created: it allows sea users to record their sightings of rays and sharks as well as biological and environmental parameters.

Methodology

Field campaigns at sea are organized around La Réunion, Mauritius and Rodrigues islands. During 60 min, 360° recording cameras are deployed between 10 and 60 meters depth and Underwater Visual Census (UVC) of 30 min are led by divers.

Results

Huge number of geographic locations around the islands has been explored (48 sites). A total of 116 cameras records and UVC have been carried out around La Réunion (26 sites), 57 at Mauritius (14 sites) and 11 at Rodrigues (8 sites). Considering records from cameras, UVC, and the sighting network, 323 elasmobranchs were detected at La Réunion (8 rays and 9 sharks species), 83 sightings at Mauritius (6 rays and 5 sharks species), and 6 sightings at Rodrigues (2 rays and 1 shark).

Conclusion

19 elasmobranch species have been recorded so far in the Mascarene archipelago: 8 rays and 11 sharks. This represents 31% of the Mascarenes elasmobranch species. The setup of this observatory is a real success considering the number of records in the database in such a short time.

References