Title
Sexual maturity of small fishes caught by mosquito seine net in SW Madagascar. Do mosquito nets only catch juveniles?

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Abstract
Small scale fishers in developing countries may use fishing gears that are considered destructive and/or illegal to make a living from their catch. Among them mosquito nets are known to catch mostly juvenile fish but very few studies have provided biological evidence to support that hypothesis in tropical areas. To address this knowledge gap, this study determined the size of maturity of fish species caught by mosquito seine net in seagrass beds off Ankilibe village, southwestern Madagascar. The catches of two seine fishers were sampled three days per month at full-moon from October 2017 to April 2018. A sample of the catch of a single fishing haul was retained per fisher and per day and analyzed in the laboratory. Identification based on CO1 DNA barcoding was adopted for taxa name assignment. The minimum size at maturity (Lmin_mat) was retained to determine the proportion of juveniles/adults for all species in the catches because the determination of L50 (the proportion of individuals with gonads in function of standard length) encountered problems. A total of 34,518 individual fishes belonging to 48 families and 166 species was obtained from 42 samples. The smallest individual (0.6cm SL) was observed for Pempheris [BOLD: AAD1777] while the largest (47.7cm SL) observed for Fistularia commersonii. Among dissected individuals (8,523), 16% presented gonads. Lmin_mat was obtained for 62 species. We conclude that: 1) Lmin_mat is more adequate to determine size at maturity of small-sized tropical fish species and to classify them as juveniles or adults; 2) most of species (94.6%) in mosquito seine net catches include juveniles; and 3) few species (5.4%) include adults only.

Key words: Small-scale fishers, Madagascar, mosquito seine net, size at maturity, juvenile fish